SOLVING THE 'HIGHLAND PROBLEM' : FRANK FRASER DARLING AND THE WEST HIGHLAND SURVEY, 1943-1955

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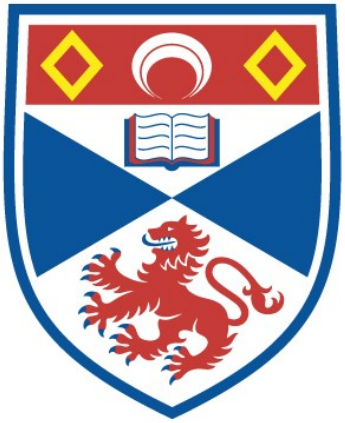
A Thesis Submitted for the Degree of MPhil
at the
University of St Andrews



2004

Solving the Highland Problem:
Frank Fraser Darling and the West Highland Survey, 1943-1955

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4 August 2003

Thesis submitted to the
Department of Modern History,
University of St. Andrews
in partial fulfilment for the
Degree of Master of Philosophy

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ABSTRACT

Between 1944 and 1951, Dr. Frank Fraser Darling conducted the West Highland Survey for the Department of Agriculture for Scotland with grants from the Development Commission. He sought to solve the 'Highland problem', a persistent demographic and economic problem in the West Highlands and Islands with centuries-old roots, but he was disappointed when the Survey failed to influence policy. It was not altogether a failure, however. It was a novel attempt to bridge the gap between the natural and social sciences.

Fraser Darling attempted to use ecology to understand and solve the Highland problem, leading him to subtitle the report 'an essay in human ecology'. Reducing the problem to an ecological base, he contended that 'the Highlands are a devastated countryside, and that is the plain primary reason why there are now few people and why there is a constant economic problem'. The theories of Frederick Clements and W.C. Allee made him view the Highlands as a super-organism, the organic and inorganic constituents of which had achieved a delicate equilibrium over centuries. He contended that modern capitalist society disrupted and destroyed this stability through deforestation, the concept of private property, and the market economy. He used the Survey to criticize modern culture and to idealize traditional rural life. For rehabilitation he prescribed conservation as 'applied ecology' to regain eco-stability and cultural evolution to withstand the conforming pressure of modern society.

The Survey failed for a number of reasons. The Department of Agriculture was suspicious of Fraser Darling, and his rehabilitative plan was ill-defined and impracticable because it was idealistic and based upon flawed history and science. But, it did not fail completely; it was an early forum for Fraser Darling's environmental philosophy, which later propelled him to great success in North America and Britain.

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ACKNOWLEDGEMENTS

I am especially grateful to Dr. John F.M. Clark, my supervisor, for his counsel, patience, and direction in the completion of this dissertation. I am especially appreciative of all his efforts that allowed me to pursue this topic and dissertation in the first place. Professor Chris Smout also deserves special thanks for his helpful advice.

I also wish to acknowledge the tremendous help of Dr. Martin Maw of Oxford University Press. John S. Gibson and Hugh Cheape were also very kind to answer my many questions. Finally, I must thank the staffs of the St. Andrews University Library, the National Library of Scotland, the Public Records Office, the Scottish National Archives, and the Woodson Research Center (Rice University) for all their help.

NOTES AND ABBREVIATIONS

The West Highland Survey exists as two distinct entities: the government-sponsored survey directed by Dr. Frank Fraser Darling and carried out between the years 1944 and 1951 and the published report of 1955. To minimize confusion, this dissertation uses italics, *West Highland Survey*, to refer to the published report and uses normal text to refer to the government survey.

Works frequently cited in the notes have been identified by the following abbreviations:

NAS	National Archives of Scotland, Edinburgh
NLS	National Library of Scotland, Edinburgh
OUP	Oxford University Press Archives, Oxford
PRO	Public Records Office and National Archives, Kew
StAUL	St. Andrews University Library, St. Andrews, Fife
SEC	Scottish Economic Committee
WRC	Woodson Research Center, Rice University, Houston, Texas
WRH	West Register House, Charlotte Square, Edinburgh

CHAPTER 1

INTRODUCTION

In January 1944, Tom Johnston, the Secretary of State for Scotland, received Dr. Frank Fraser Darling at St. Andrews House, Edinburgh. As Britain was embroiled in war and preoccupied with planning the peace, Fraser Darling was proposing a scientific survey of the West Highlands and Islands, the poorest and least populated region of Scotland—and Britain.[1] Nearing forty, his war service application had been denied, but war had destroyed his research, cutting short in December 1938 his seal study on the remote western island of North Rona.[2] In the years between North Rona and his interview with Johnston, Fraser Darling had stayed on in northwest Scotland, farming a derelict croft on a small coastal island. As the months and years went by, his plans to return to North Rona gave way to a much grander scheme: to study and solve scientifically the enduring 'Highland problem' of depopulation and economic decline.

In the West Highland Survey Frank Fraser Darling attempted to apply to a specific human problem the principles of his faith in holistic ecology's powers. Though his formal education had been irregular, he was by training an agricultural scientist and biologist. Over time, his studies and experience in agriculture and animal behaviour drew him into a more general appreciation of ecology, human sociology, and ethics. To Fraser Darling, the holism of ecology brought logical, scientific, and quantifiable answers to difficult problems in human, animal, and plant affairs. In short, he envisioned ecology as a tool with which the world's biological, economic, political, and social problems could be understood, grappled with, and ultimately solved. Ecological concepts gave insight to such problems, and applied

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[1] This dissertation uses the terms 'Highlands' and 'Highland' as Fraser Darling did to denote the region covered by his Survey, an area which included the islands of the inner and outer Hebrides within the more general term of 'Highlands'. It encompassed the western parts of the crofting counties of Sutherland, Ross and Comarty, Caithness, Argyll, and Inverness-shire but excluded Shetland and Orkney. See the appendix for a map of the region.

[2] J. Morton Boyd, *Fraser Darling's Islands* (Edinburgh, 1986), 167-168.

ecology, or, in his words 'conservation', solved them.[3] During his years in the Highlands, from the mid-1930s through the end of the Survey in 1951, his ecological and conservationist ideas developed into an important ethic.

In the mid-twentieth century, Fraser Darling was an ecologist and an advocate of conservation decades before either were popular pursuits outside of a narrow realm within academia and politics. Despite his research background, he was not an academic, and his theories did not always mesh with those of his professional peers. In his scientific research, he leapt into new subjects every few years; he abhorred laboratory work; and he disliked working with mathematical models. He excelled in observation and descriptive narrative and was in many ways like the archetypical naturalist of the previous century. In the mid-twentieth century, however, his work could often be considered superficial compared to his academic peers.[4] In addition, his remarkable ability and desire to garner a broad and popular appeal for his beliefs and theories strained his professional and political relationships. To Fraser Darling, ecology transcended academia, politics, and economics and permeated all aspects of life on Earth.[5] To that end, he felt that with his knowledge as a scientist he had the special ability and necessary duty to help society. As early as 1940 he wrote of his 'wish is to serve, to give, to seek, and interpret'.[6]

Though Fraser Darling felt his work had enhanced meaning and value for its very incongruity with his intellectual peers' work, he nevertheless occupied an uneasy position within ecology and conservation at mid-century. On the one hand, he had an incredibly infectious enthusiasm for his ideas; and when these ideas were timely and manipulative, Fraser Darling enjoyed political favour. Fellow scientists recognized and admired his enthusiasm. On the other hand, when his ideas coupled with that same exuberance ran counter to political or academic orthodoxy, his science failed to support him due to its vague, descriptive quality, and he became something of a nuisance to his patrons. The West

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[3] 'Conservation is quite definitely the applied science of ecology, ecology in action': Frank Fraser Darling, 'Conservation and Ecological Theory', *Journal of Animal Ecology*, 33 (1964), 42.
[4] Boyd, *Fraser Darling's Islands*, 103-109.
[5] Ibid, 104.
[6] Fraser Darling, *Island Years* (London, 1940), 72.

Highland Survey mouldered in such a fashion, a consequence of his daring leap into the contentious realm of human social studies from his earlier and more modest animal behaviour studies. Despite positive initial support for the project, its completion was met with an eerie and unexplained silence.

The government's poor reception of the Survey's report, *West Highland Survey: An Essay in Human Ecology*, and the four-year delay in its publication is commonly blamed on the Department of Agriculture for Scotland.[7] However, it is clear that the story is more complicated. The Department of Agriculture's archives show that the Department was never in favour of the West Highland Survey.[8] In his position as Secretary of State for Scotland, Tom Johnston (1941-1945) overrode the Department's objections because he admired Fraser Darling's crusading enthusiasm and his expertise.[9] In addition, Fraser Darling had the approval of the Development Commission, a Whitehall advisory body founded in 1909, which funded progressive solutions to averting Britain's 'rural crisis'.[10] The Commission financed the Survey through the Department of Agriculture for Scotland and remained one of the Survey's and Fraser Darling's supporters throughout.[11] The support of Johnston and the Development Commission, however, was not enough to ensure approval and application of the Survey's conclusions. Johnston retired in 1945, and the Development Commission had no executive power. Ultimately, Fraser Darling had to persuade the Department of Agriculture.

It is not clear why the Department of Agriculture did not like Fraser Darling or his Survey. Part of the problem, however, was personality. Fraser Darling was stubborn and refused to compromise, which made him a poor politician and frustrated his relationship

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[7] See James Hunter, *The Claim of Crofting* (Edinburgh, 1991), 98; Hunter, 'Forgotten Blueprint for the Highlands', *The Weekend Scotsman* (20 October 1984); Boyd, *Fraser Darling's Islands*, 207-208.

[8] See North of Scotland College of Agriculture, County Work, Employment of Dr. F. Darling, NAS WRH AF 70/240; West Highland Survey, Preparation of Final Report, NAS WRH AF 70/241.

[9] Boyd, *Fraser Darling's Islands*, 190.

[10] Alan Rogers, *The Most Revolutionary Measure: A History of the Rural Development Commission, 1909-1999* (Salisbury, 1999), 4.

[11] See West Highland Survey by F. Fraser Darling, 1944-1946, PRO D 4/380; West Highland Survey by F. Fraser Darling, 1946-1952, PRO D 4/752.

with the Department of Agriculture.[12] He was frank with his opinions, had enormous confidence in his ecology, and was quick to judge. On occasion his self-confidence became terrible self-doubt, and he often felt persecuted and was quick to confer blame for apparent slights.[13] In addition, he also had difficulty finishing projects on time, which did not impress his employers. His enthusiasm often found him involved in too many projects at once. As a result, the West Highland Survey was completed a year and a half late.

Fraser Darling's occasional paranoid belief that the scientific community did not respect him was not completely unfounded. Throughout his life and career, he was often an outsider, never completely accepted by his academic or scientific peers nor entirely respected by his government employers. Socially, he was uncomfortably aware of his illegitimate birth; his disgraced mother gave birth to him in a hayloft near Chesterfield, Devon in 1903. Late in life, however, he attributed his unorthodox birth and upbringing to his success: 'that feeling I was outside gave me the freedom I might not have had, and lack of conventionality being outside class and inwardly convinced that I was tolerably well bred.'[14] By the 1930s and 40s, Fraser Darling counted eminent scientists like Charles Elton, Max Nicholson, and Julian Huxley amongst his friends, but unlike them he never belonged to Britain's intellectual aristocracy. He did not finish school but earned a degree from the Midland Agriculture College. His science was different because he abhorred mathematics and laboratory work, which he considered 'artificial'.[15] After his marriage to Marion 'Bobbie' Fraser, from whence 'Fraser' became part of his name, he studied at the University of Edinburgh and completed a Ph.D. on the genetics of Blackface sheep in 1928. But after a few years working at the Imperial Bureau of Animal Genetics in Edinburgh he abandoned academia for a series of studies in animal behaviour in the West Highlands and Islands.

By fleeing academia for the Highlands in 1933, Fraser Darling isolated himself from his scientific peers both geographically and intellectually. His ecology was based on the

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[12] Boyd, *Fraser Darling's Islands,* 207 and W.J. Eggeling to Boyd, 19 November 1986, J. Morton Boyd, Frank Fraser Darling Papers, StAUL MS 38449/26.
[13] Max Nicholson, *The New Environmental Age* (Cambridge, 1987), 171.
[14] Quoted in Boyd, *Fraser Darling in Africa* (Edinburgh, 1992), 3.
[15] Fraser Darling, *Island Farm* (London, 1944), 17.

most accepted theories of the 1920s and 1930s and included the work of Charles Elton, Frderick Clements, and W.C. Allee and the socio-biological work of J. Arthur Thomson and Patrick Geddes.[16] Over his lifetime Fraser Darling's own ecological theory evolved little from this base while the discipline as a whole was in great flux and ecologists would eventually reject much of Clementsian theory.[17] As ecology became increasingly reductionist and mechanistic, Fraser Darling clung to earlier holistic principles, and he remained more generalist in scope. Despite the brilliant success of his red deer study in the mid-1930s, his science grew suspect as the years went by.

Fraser Darling based the West Highland Survey on Clementsian ecology. This allowed him to view the Highland and Island region as a superorganism that had achieved a delicate equilibrium amongst its organic and inorganic constituents over hundreds of years. Clements's organism metaphor was a simple way to understand how the natural world worked. It provided a pattern of development over time that appeared to fit the scientific evidence. More significantly, it was a philosophical tool. The idea that nature was like an organism suggested that everything was interconnected and dependent. Therefore, stability, or equilibrium, in which everything was harmonious, was nature's ideal state, and disruption of such a state created instability and ill-health. If ecology could understand this, there seemed no reason that it could not cure problems caused by instability as well.

The organism metaphor and the idea of equilibrium was more than an ecological model, it provided the base for an ethic. Aldo Leopold's famous 'Land Ethic' from his posthumous collection of writing, *A Sand County Almanac* (1949), is probably the most famous, but Fraser Darling propounded one as well in *West Highland Survey.*[18] His environmental ethic brought him fame in the 1960s and 1970s and is probably what he is most remembered for. The model of Clementsian ecology along with additions by Elton

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[16] Fraser Darling outlined his ecological influences in *A Herd of Red Deer* (New York, 1967ed), 73-74, 208-209.

[17] See Robert P. McIntosh, 'The Myth of Community as Organism', *Perspectives in Biology and Medicine*, 41 (1998), 426-438.

[18] For discussion of Aldo Leopold's 'Land Ethic' see J. Baird Callicott, 'The Conceptual Foundations of the Land Ethic', in J. Baird Callicott, ed, *Companion to 'A Sand County Almanac'* (Wisconsin, 1987), 186-217.

and others led him to conclude that the Highlands' biotic community had over centuries developed an equilibrium, which perfectly suited the environment. Such an interpretation was appealing for a region like the Highlands because it was geographically isolated from the rest of Britain and was inhabited by a distinct human culture. In the Survey, Fraser Darling found evidence that traditional Gaelic culture had evolved to cooperate with the natural environment for the benefit of the whole biotic community, which ensured equilibrium and the health of the greater environment.

However, Fraser Darling viewed the current state of the Highlands' environment and culture as far from this ideal equilibrium in the late 1940s. Through ecology, he accorded the region's economic destitution and de-population to the disruption of the region's delicate natural balance. This disruption began in the mid-eighteenth century when modern Britain began making serious inroads, both literally and figuratively, into the region after the Jacobite defeat at Culloden. A combination of capitalism and the concept of private property destroyed the clan system and the region's equilibrium. By way of timber, sheep, and kelping, modern Britain re-ordered the Highland economy and society after 1745 but did so in a manner which seriously damaged the region's ecological equilibrium. Preaching the values of what he saw as sustainable land-use technology and cooperative social organization in the pre-1745 Highlands, Fraser Darling opposed the 'traditional' Gaelic culture to modern culture, and it was clear which one was better. He crafted the Gaelic culture into an ideal, from which he hoped modern society could learn lessons.

To solve the Highland problem, therefore, Fraser Darling advocated rehabilitation of the region's equilibrium, and he proposed to do this through conservation as applied ecology. In his cure, he envisioned an evolution within the Gaelic culture that would take the best traditions of the past and good methods of the present to create a vibrant culture that could withstand any future onslaught from modern Britain. To accomplish this, he called for an executive authority, the brief of which would be solely Highland welfare. It would oversee the physical reconstruction of the land through afforestation, fertilization of the soils, and grazing reduction, and it would direct and encourage cultural evolution.

Ultimately, the rehabilitation of the Highlands's ecology and culture would take at least a hundred years, but would be for the benefit of all Britain.

Fraser Darling's use of the terms 'conservation' and 'evolution', however, was problematic. Each was nebulous in meaning. While it was difficult to oppose the principles of his argument, it was hardly practical. Evolution implied gradual, natural, and internal change over time, but what Fraser Darling actually envisioned was imposed evolution, led by outside experts and the region's traditional social elites. The values associated with conservation varied by individual, and the Department of Agriculture clearly had a very different conception of it than Fraser Darling had. Fraser Darling was motivated primarily by the social and aesthetic attributes of conservation while the Department of Agriculture would have preferred a greater emphasis on economics and efficiency. After all, Britain was at war at the outset of the Survey and was short food and cash throughout. Out of national necessity, its priority was increasing domestic food production.[19] From its inception in 1912, the Department of Agriculture was a significant landowner and landlord to hundreds of crofters who lived on state-owned land. It, therefore, had an important stake in the region's economic and social well-being. However, it was also cautious and orthodox, especially in the face of wartime needs and the economic instability of the post-war years. An expensive, idealistic, and lengthy solution of the Highland problem was, therefore, impractical.

The so-called 'Highland problem' was long-standing and had withstood repeated attempts to resolve it. With his proposal to study it, therefore, Fraser Darling was entering a well-established and contentious policy debate. In the 1940s the Highland problem manifested itself as a case of severe depopulation and economic insolvency, but the manifestations and degree of the problem varied significantly from place to place. In Lewis, for instance, the demographic problem was often congestion while in the northwest mainland it was gross under-population.[20] It was an extremely complex situation that had defied repeated attempts to 'fix' it. The economist Adam Collier more aptly called it 'the

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[19] See John S. Gibson, *The Thistle and the Crown: A History of the Scottish Office* (Edinburgh, 1985), 115.

[20] Fraser Darling, 'A Brief Historical Résumé', in Fraser Darling, ed, *West Highland Survey: An Essay in Human Ecology* (Oxford, 1955), 12.

crofting problem', for at its heart it was a problem that faced the crofters, a people of Gaelic culture with hundreds of years' heritage in the Highland region.[21] They were small land tenants who eked out a livelihood from agriculture on their small plot of land, the 'croft' and communal pastures, and from ancillary work, which ranged from military service to fishing to seasonal labour. Theirs was a life very different, and often at odds, to the modern British way of life.

Highland history and the Highland problem are emotive and controversial subjects. Unsurprisingly, therefore, Highland historiography is complex and fraught with tensions, contradictions, and controversy. There exists a substantial body of work on the history of the Highlands from the eighteenth century through the 1880s, but there is considerably less literature devoted to Highland history after the Crofters' Holding (Scotland) Act in 1886. James Hunter's *The Making of the Crofting Community* (1976) was one of the first conscious attempts to extend that history and to make the crofter the central subject of the region's history; as such, it is an important but controversial book.[22] While recognized for his important role in reinvigorating the study of Highland history, Hunter is also accused of being one-sided and polemical.[23] Not to be outdone, Hunter accuses academic historians of the Highlands, including T.C. Smout, T.M. Devine, and Ewen A. Cameron, of being overly pedantic and pro-landlord.[24] A number of historical geographers, David Turnock in particular, have also advanced our knowledge of modern Highland history.[25] Cameron, however, has probably made the most comprehensive contribution in furthering it by extending it to the present. Though Hunter's criticism may have some validity, Cameron's work is the most substantial and analytical account of modern Highland history today. As

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[21] Adam Collier, *The Crofting Problem* (Cambridge, 1953).
[22] James Hunter, *The Making of the Crofting Community* (Edinburgh, 1976).
[23] See Ewen A. Cameron, review of *The Making of the Crofting Community*, by James Hunter, *Scottish Historical Review*, 75 (1996), 262-263; Andrew G. Newby, review of *Last of the Free*, by James Hunter, *Scottish Historical Review*, 81 (2002), 152-153.
[24] Hunter, preface, *The Making of the Crofting Community* (Edinburgh, 2000ed), 1-30.
[25] David Turnock, 'The Highlands: Changing Approaches to Regional Development', in G. Whittington and I.D. Whyte, eds, *An Historical Geography of Scotland* (London, 1983), 191-216; Turnock, *The Historical Geography of Scotland since 1707* (Cambridge, 1982); Turnock, *Patterns of Highland Development* (London, 1970).

such, a conscious decision was made to use his work as the historical basis for this dissertation.

As a result of the disintegration of the Highlands' traditional clan system, the crofting system developed as a solution for the settlement and integration of the region's peasant population after the region's political, social, and economic incorporation into the greater British state from the eighteenth century onwards. It was a hybrid of ancient custom and modern economy; whereas a sense of kinship and connection to the land remained, crofting also evolved as part of the modern commercial rent economy, in which both landlord and tenant had real economic concerns in order to remain solvent and retain their land. In addition, the crofter and his family often sold their services to various industries to supplement the income of the croft. Throughout the nineteenth century, however, the region often faced economic trouble due to its narrow base, which made it prone to devastating cycles of boom and bust. By the mid-century poverty and overcrowding were rampant. T.C. Smout makes it clear, however, that greedy landlords and southern sheep farmers were not entirely to blame for the problem. The crofters deserve part of the blame because of their obdurate passion for the land, which tied them to it despite all the attendant problems.[26] In the 1880s, the government finally decided to solve the Highland problem.

Beginning in the 1880s, therefore, the West Highlands and Islands became a special policy area.[27] After a significant amount of crofter agitation, especially in Skye and Lewis, and a Royal Commission of Inquiry, the Napier Commission, the government passed the Crofters' Holding (Scotland) Act in 1886 with the intention of righting past wrongs.[28] The 1886 Act applied to 151 crofting parishes, defined by those areas which had a history of common grazing.[29] The Act gave those who fell into the new legal definition of 'crofter' special rights, including guaranteed security of tenure and compensation for improvement. In addition, it instituted a Crofters Commission to fix fair rents and administer the Act.

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[26] T.C. Smout, *A Century of the Scottish People 1830-1950* (London, 1986), 13.
[27] Cameron, 'The Scottish Highlands as a Special Policy Area', *Rural History*, 8 (1997), 195-215.
[28] Ibid, 196.
[29] Ibid, 197.

Although the Act placated some crofter grievances, it failed to provide more land for crofters and cottars, the region's land-less population, which was one of the more pressing problems facing the population. However, the Act set the precedent in the region for government intervention, which would escalate in intensity to the present day. This is a condition that Cameron stresses made the 1886 Act a defining moment in Highland history.[30]

Because the 1886 Act failed to solve the Highland problem completely, three more unsuccessful acts were passed in 1897, 1911, and 1919. The 1897 Congested Districts (Scotland) Act created the Congested Districts Board, which aimed to relieve congestion in crofting areas. The Board attempted to create new crofts by buying land and resettling crofters, and it also hoped to make crofters into landowners. Due to under-capitalization and crofters' resistance to landownership and to migration, the Congested Districts Board was not particularly successful in achieving its objectives.[31] The 1911 Small Landholders (Scotland) Act extended the concept of security of tenure to lowland Scotland and instituted the compulsory creation of new crofts and the enlargement of existing crofts on privately-owned land. It abolished the Congested District Board and the Crofters Commission, replacing them with the Scottish Land Court and the Board of Agriculture for Scotland, which became the Department of Agriculture for Scotland in 1929. The Act was successful in relieving congestion in some areas, but, overall, it satisfied little more than ten percent of the demand for land.[32] The Land Settlement (Scotland) Act of 1919 aimed to provide land to returning servicemen while once again attempting to solve the incessant land problem. Like the 1911 Act, it created new holdings on privately-owned land, but it was backed with more financial power and it provided for state landownership. This act was more successful:

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[30] Cameron, 'The Scottish Highlands: From Congested District to Objective One', in T.M. Devine and R.J. Finlay, eds, *Scotland in the Twentieth Century* (Edinburgh, 1996), 153.
[31] Cameron, *Land for the People? The British Government and the Scottish Highlands, c.1880-1925* (East Linton, 1996), 83-123.
[32] Ibid, 165.

between 1912 and 1925, demand for settlement was met for nearly 29 percent in the crofting counties.[33]

Despite some success, there remained a Highland problem in the mid-twentieth century. Overall, the population continued to decline, and quality of life remained low. The Hilleary Committee, an investigation body of the Scottish Economic Committee, examined the economic manifestation of the Highland problem from 1936 to 1938. It concluded that 'the question is how to enable a scattered but huddled population to live tolerably under natural conditions probably more difficult than those existing in any other part of the Great Britain'.[34] The Highland problem had, therefore, become an issue of how to bring about a better quality of life to the Highland people that would be more like the standard of the rest of Britain.

Until 1930, the Highland problem was primarily that of not enough land for the crofters. From the 1930s onward, it was seen as a much broader problem, recognized by the decline in employment opportunities, which had placed crofters in severe financial straits.[35] Although admittedly similar to the condition of the entire nation, the Highlands differed from the rest of Scotland because its particular problem was not just a product of national economic depression: 'this, unlike the Special Areas [areas with serious industrial problems in 1934-37], is as old as the physical conditions which give rise to it, and unless the whole economy of the Highlands is revolutionised by the introduction of big industry...its fundamental characteristics will persist'.[36] The Hilleary Commission recommended the introduction of 'big industry' to solve the problem of population loss and economic contraction, recognizing that the region's economic base was extremely narrow and largely dependent upon geography and climate.

It was within this context that Fraser Darling first came to the Highlands. In the early 1930s, he came to Wester Ross, a region in the northwest Highlands that was one of the areas most affected by depopulation and poverty. Though the conclusions of the Hilleary

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[33] Ibid, 188-189.
[34] Quoted in Cameron, 'Scottish Highlands as a Special Policy Area', 204.
[35] See ibid, 203 and Cameron, 'From Congested District to Objective One', 154-157.
[36] Quoted in Cameron, 'Scottish Highlands as a Special Policy Area', 204.

Committee were placed on hold when war broke out in 1939, its emphasis on establishing local industries continued to dominate Highland policy.[37] During the years Fraser Darling directed the West Highland Survey, the government attempted a more integrated approach in regional policy though it remained dominated by a collection of organizations rather than a single authority, a situation Fraser Darling deplored.[38] Examples of such organizations included the Department of Agriculture for Scotland, the Forestry Commission, the Scottish Tourist Board, and the Herring Industry Board. In addition, the Advisory Panel on the Highlands and Islands—later known as the Highland Panel—was established in 1946 to advise St. Andrews House on Highland affairs.[39] In 1943, the North of Scotland Hydro Electric Board (NSHEB) was established with the objectives of harnessing the Highlands' potential water power for the generation of electricity, providing cheap electricity to the region, and improving the region's social and economic condition by way of its so-called 'social clause'.[40]

Despite rhetoric that championed integrated development and the promotion of auxiliary industries, Highland policy remained unfocused in the immediate years following the war. The Highland problem appeared to remain intractable. In such a context, it is possible to see why Fraser Darling's novel scheme would gain support. The West Highland Survey promised to look at the Highland problem from a new point of view—ecology. The Survey originated during a period within Scottish politics when experimentation and bipartisan collaboration were encouraged. Winston Churchill had given the Labour Secretary of State for Scotland, Tom Johnston, significant powers because Johnston had requested them as requisite to his accepting the post in 1941.[41] Johnston had long been interested in reversing the Highland problem; he saw the crofters and rural, small-town Scotland as the backbone of the nation, and he despaired of their poverty in the twentieth

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[37] Cameron, 'From Congested District to Objective One', 160.
[38] Ibid, 161; Fraser Darling and Averil Morley, 'The Social Situation', in Frank Fraser Darling, ed, *The West Highland Survey: An Essay in Human Ecology* (Oxford, 1955), 360-361.
[39] See Ian Levitt, 'The Creation of the Highlands and Islands Development Board, 1935-1965', *Northern Scotland*, 19 (1999), 92-93.
[40] Ibid, 162; see also Emma Wood, *The Hydro Boys* (Edinburgh, 2002), 59.
[41] Christopher Harvie, 'Labour and Scottish Government: The Age of Tom Johnston', *Bulletin of Scottish Politics*, 2 (1981), 12.

century. In the first decade of the century he had helped to re-establish the Highland Land League, an organization that was decidedly anti-landlord and promoted the nationalization of land.[42]

By the Second World War Johnston was less radical but no less hopeful for a redeemed Highland population. One of his biographers argues that 'it was an important part of his dream—held since his earliest political days—of re-establishing a self-supporting population in the Highlands and seeing the renaissance of the heart of "Scotia"'.[43] To this end, one of his first actions in office was to ensure the passage of the bill that created NSHEB in 1943. Johnston had high hopes that NSHEB would work with agencies to promote social and economic development in the Highlands; and as director from 1946 onwards, he made sure the Board's primary concern was the generation of electricity for domestic consumers across the region.[44] Johnston and Fraser Darling both idealized the Highlands and its people, believing they made an important contribution to the greater national ethos. Johnston was willing to experiment and take a chance with Fraser Darling especially as they both admired the model of the United States' Tennessee Valley Authority (TVA) and were eager to attempt its application in the Highlands. In NSHEB Johnston envisioned a regional authority in the Highlands like the TVA. In addition, he had come to favour expert opinion in the formation of policy, and Fraser Darling's credentials and expertise could therefore be seen as useful in the exploration of new policy in the Highlands.[45]

The favour with which Johnston viewed Fraser Darling and the West Highland Survey, despite the fact that Fraser Darling was more socially conservative than Johnston, was crucial in the initial stages of the Survey. Intrigued by his articles on the Highland problem in the *Glasgow Herald* and by his popular books about his life in the western islands, Johnston asked Fraser Darling to meet with him at St. Andrews House in 1942.[46] They discussed the Highland problem and agriculture, and it was quickly decided that Fraser

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[42] See Graham Walker, *Thomas Johnston* (Manchester, 1988), 10-14.
[43] Ibid, 158.
[44] Cameron, 'The Scottish Highlands as a Special Policy Area', 205.
[45] Smout, *A Century of the Scottish People*, 273.
[46] Sir Patrick Laird to Fraser Darling, 23 April 1942, NAS WRH AF 70/240.

Darling would become a part-time agricultural advisor to the crofters. This was just the invitation he needed to launch his grander scheme for a survey that would examine the ecological roots of the Highland problem and propose solutions for it. Since the early days of the war, he had hoped to pursue this greater research project. He approached the Department of Agriculture for Scotland and the Development Commission in 1943 with his idea, and in January 1944, he proposed the West Highland Survey to Johnston and soon after received his approval.[47]

The West Highland Survey could have been Fraser Darling's *magnum opus*. Years of studying the social behaviour of specific animal species in the West Highlands and Islands made him believe he had intimate knowledge of the region's ecology. They also brought him into contact with a people whose lives, culture, and history were very different from his own. With his background in agriculture and animal behaviour, coupled with the holistic lens of Clementsian ecology, Fraser Darling found the Gaelic community and their environment a compelling case study. The Survey was an ambitious attempt to use the science of ecology to understand and fix a difficult human problem, but it was the logical outcome of his Highland work. It promised to bridge the gap between the biological and social sciences by applying the objectivity of science to the human realm.

Fraser Darling's effort to bridge this gap was by no means unprecedented; since the end of the last century social reformers and scientists had used the rhetoric of the biological sciences and evolutionary theory to support different social theories. The West Highland Survey, however, promised to put theory into action, taking a specific human social problem, the Highland problem, and solving it by way of ecology. It was an exciting prospect, backed by the government and well funded by the Development Commission. A failure or a success, its report, *West Highland Survey* (1955), made Fraser Darling's reputation.

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[47] See Fraser Darling, 'Memorandum on the West Highland Problem and the Establishment of a Preliminary Sociological Investigation and Agricultural Advisory and Demonstration Centre in the Crofting Areas', (1943) in PRO D 4/380 and NAS WRH AF 70/240.

Ultimately, the West Highland Survey was probably too ambitious; and Fraser Darling was ill-suited for the task. The Highlands and Islands and Gaelic culture had become an integral part of Scottish history, both real and imagined, and the fate of the region and its people was a highly emotive and political topic, as it remains today. Many people had solutions for the problem, but past attempts to solve it had never been enough. Consequently, any new proposal was viewed with close scrutiny and suspicion. There existed a great number of agencies, advisory boards, and charities which dealt with the problem independently and were hesitant to sacrifice their autonomy. As such, Fraser Darling entered a very dangerous situation when he proposed the West Highland Survey in 1943. For his conclusions to be considered for future Highland policy he had to tread a careful path among many interests. Even his invocation of his science and its implied objectivity would not be enough to sway hardened opinions.

CHAPTER 2

THE WEST HIGHLAND SURVEY

The formal origins of the West Highland Survey rest in a letter Sir Patrick Laird, Secretary of the Department of Agriculture for Scotland, sent on 23 April 1942 to Frank Fraser Darling, who was waiting out the war on Tanera Mor, a small island off Scotland's northwest coast. This letter invited Fraser Darling to Edinburgh for a meeting regarding Secretary of State for Scotland Tom Johnston's interest in his articles in the *Glasgow Herald*. Laird wrote that Johnston 'remembers your offers of service earlier in the war and although he has no proposition to make in that connection at the moment, he would like to hear your view on various matters in which you are interested'.[1] The planting of his root crops prevented Fraser Darling from venturing to Edinburgh promptly, but eventually the two decided upon 15 June.[2] Undoubtedly sanguine and excited, Fraser Darling viewed this meeting as an opportunity for legitimising his independent work and theories about Highland agriculture and the 'Highland problem'. In addition, as his subsequent actions proved, this was just the invitation he required to extend the scope of his work in the Highlands through Government sponsorship.

The topic of discussion between Laird, Johnston, and Fraser Darling was agriculture and the Highland problem. That summer, while Fraser Darling battled with his new tractor, the Department of Agriculture for Scotland sought information about his worthiness for demonstration and advisory work in crofting agriculture, a scheme that it appears Johnston concocted himself. A former Clydeside politician, Johnston was a great promoter of agricultural expansion, rural rights, and hydro-electricity during his tenure as Secretary of State for Scotland (1941-1945) in Churchill's Coalition Government.[3] In July, Laird approached A.R. Wannop of the North of Scotland College of Agriculture for his opinion on

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[1] Sir Patrick Laird to Frank Fraser Darling, 23 April 1942, North of Scotland College of Agriculture, County Work, Employment of Dr. F. Darling, NAS WRH AF 70/240.
[2] Fraser Darling to Laird, 30 April 1942.
[3] Christopher Harvie, 'Labour and Scottish Government: The Age of Tom Johnston', *Bulletin of Scottish Politics*, 2 (1981), 14.

Fraser Darling and suggested that Johnston's project be placed under his College's auspices. Laird recounted the meeting between Fraser Darling and Johnston, outlining Fraser Darling's work on Tanera and his opinion on how agriculture might be improved in the Highlands:

> During that meeting a good deal was said about the ignorance of crofters in general and Fraser Darling seems to have attracted a good deal of attention amongst the crofters on the Mainland and to have given them a good deal of information and advice. He was full of the theme of the necessity for better education for the crofters by demonstration crofts and so on.[4]

Laird then laid out Johnston's ideas for Fraser Darling: 'Subsequently, Mr. Johnston suggested to me that we might consider the possibility of utilizing Dr. Darling's services on a part-time basis in demonstration and education work.'[5] In 1938, the Scottish Economic Committee had recommended just such work as a useful tool towards alleviating the Highland problem.[6]

Despite Johnston's eagerness to pursue the project, others were not as convinced by Fraser Darling's suitability for the task. Wannop responded to Laird's letter emphasizing that though he had not met Fraser Darling, he knew of his reputation: 'I was not sure how far Darling who has some "bells in his bonnet", as well as some very useful ideas, would make an acceptable advisor to the crofters.'[7] He worried that Fraser Darling had 'sentimental ideas',[8] and he observed that there existed 'very divided views about him, some people are most enthusiastic, others like Caie, doubtful'.[9] J.M. Caie, Deputy Secretary of the Department of Agriculture for Scotland, was a strong opponent of Fraser Darling's plans. Wannop described him as 'obviously very sceptical about his [Fraser Darling's] usefulness'.[10] Caie and others voiced their hesitations about the Johnston-Fraser Darling scheme: in a note from 1942, Caie and Laird agreed that they thought Fraser Darling would

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[4] Laird to A.R. Wannop, 7 July 1942, NAS WRH AF 70/240.
[5] Ibid.
[6] Scottish Economic Committee, *The Highlands and Islands of Scotland: A Review of the Conditions with Recommendations for Improvement* (Edinburgh, 1938), ch 5, 77, 144-145.
[7] Wannop to Laird, 15 July 1942, NAS WRH AF 70/240.
[8] Wannop to Laird, 21 October 1942.
[9] Wannop to Laird, 17 September 1942.
[10] Wannop to Laird, 21 October 1942.

not be effective but, citing Johnston's impatience to begin the project, they acquiesced.[11] Thus, Tom Johnston was pivotal in persuading the Department of Agriculture to hire Fraser Darling despite its most senior civil servants' clear reservations.

Fraser Darling's infectious enthusiasm for the Highlands' culture and problems won Wannop's approval and placated some members of Scotland's Department of Agriculture. As Wannop noted, the success of the project depended 'on Darling's personality', and 'my own feeling is to give him a trial. He obviously has ideas and enthusiasm, and it would be a very valuable experiment. There does not seem to be anyone else available in any case'.[12] Wannop felt strongly that the crofting areas required a scheme such as Johnston proposed, but he recognized that volunteers were scarce, citing a lack of 'necessary interest and drive' amongst his own staff for such work.[13] Ultimately, he concluded that such a project 'needs someone like Darling who is full of enthusiasm to be on the spot and to keep the scheme going'.[14] He, therefore, urged Laird to pursue the project on a provisional basis, for if anything, 'possibly a new attitude and a fresh mind might be highly stimulating'.[15]

The scheme was formally proposed to Fraser Darling in October 1942 in Edinburgh. Not a fortnight earlier, Fraser Darling had written Laird distressed that his efforts to help crofting agriculture from his island farm were wasting his time. He argued that 'starting from below scratch...we [he and his wife, Bobbie] have shown what can be grown in the West, but...unless some body more powerful than ourselves can tell the same story,' he would be better off returning to his research in animal behaviour.[16] Clearly Fraser Darling hoped to push the Department of Agriculture into offering him a job, and the offer came through quickly afterward with a £200 part-time salary and £200 travelling expenses per annum.

Fraser Darling was ecstatic. Here, finally, was official recognition and remuneration for work that had been previously an unofficial, arduous, and unreliable livelihood. The

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[11] J.M. Caie and Laird, 13 November 1942, Records Book, NAS WRH 70/240.
[12] Wannop to Laird, 15 July 1942; Wannop to Laird, 17 September 1942, NAS WRH 70/240.
[13] Wannop to Laird, 15 July 1942.
[14] Wannop to Laird, 17 September 1942.
[15] Wannop to Laird, 21 October 1942.
[16] Fraser Darling to Laird, 23 September 1942.

appointment legitimised not only his work in the Highlands, it appeared to legitimise his theories and his science. To Julian Huxley, Fraser Darling rejoiced over his interview with Johnston:

> There seems a good chance that I shall spend about half my time now giving forth of the principles we have unearthed here [at Tanera]. The Dept. Agric. is keen at last... & they have been so flattering as to suggest that few could do this as effectually as I could. I can't tell you how thankful I am about this, in that it is the dawn of fruition after these three years of great toil here.[17]

In a similar letter to Huxley, Fraser Darling added that the project 'is the logical outcome of my work'.[18]

Fraser Darling seemed, however, unaware of the many serious reservations of some men within the Department of Agriculture for Scotland. Johnston's days as Secretary of State for Scotland were running short: he would resign from the Coalition in April 1945 to head the Scottish Tourist Board and the Scottish Division of the Forestry Commission before taking the chair of the North of Scotland Hydro-Electric Board in 1946.[19] With Johnston's resignation, Fraser Darling lost his powerful benefactor in Government, leaving him to a sometimes hostile Department of Agriculture and a series of new Secretaries of State. To the Department of Agriculture in 1943, Fraser Darling's employment was strictly part-time and provisional, an inexpensive trial to placate the Secretary of State's wish.[20] Unaware of this, Fraser Darling believed he had the Department firmly behind him. He professed effusive thanks to Laird for the opportunity to work with the crofters and declared his intention to devote himself selflessly to the task: 'I shall approach this work in the spirit of social work & look upon the establishment of demonstration crofts & the personal, friendly style of educational contact with the crofters as the beginning of a considerable social experiment.'[21]

Fraser Darling's reference to 'a considerable social experiment' in this letter in the autumn of 1942 is the first official suggestion of what would become the West Highland Survey two years later. Though he was hired only for part-time demonstration work in

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[17] Fraser Darling to Julian S. Huxley, 10 October 1942, Julian S. Huxley Papers, Rice University, WRC MS 50.
[18] Fraser Darling to Huxley, 20 October 1942.
[19] See Harvie, 'Labour and Scottish Government', 14-16.
[20] See note from Laird to Caie, 13 November 1942, Records Book, NAS WRH AF 70/240.
[21] Fraser Darling to Laird, 10 October 1942, NAS WRH AF 70/240.

1943, he was already planning a grander scheme of a broad sociological and ecological survey of the Highland and Island region. In the same letter to Laird, he wrote of the opportunity that his advising and demonstrating would give to understanding the Highland problem: 'this work will not be merely giving out knowledge to the people, but a fine opportunity of gathering information which will help us to consider the West Highland problem as one of human ecology as well as of agricultural ecology. I shall wish to develop this side on which I have already spent much thought & gathered data.'[22] To Huxley, Fraser Darling professed a long-held interest in a grander scheme: 'here is the beginning of a social experiment which has been near my heart from several years....'[23] In his next letter, he suggested that in addition to his advising and demonstrating duties he would collect data for a larger study: 'one day about five years hence I shall hope to produce what has lain in my mind for several years—a study of the West Highland problem as one of human ecology.'[24]

Thus, as early as 1942, if not earlier, the idea of the West Highland Survey was with Fraser Darling, and he was surely aware that such a novel method of enquiry, human ecology, would make his study revolutionary.[25] He considered himself in the 'most productive years of my life' during the Survey years, and he had a strong premonition that the Survey would be his greatest work as he envisioned that it would 'logically' pull together his interests and knowledge into a coherent whole to cap his career and life.[26] But he still needed to convince Johnston and a sceptical Department of Agriculture to accept the scheme. Two months into his demonstration work, he approached two Development Commissioners, Dr. W.G.S. Adams, the Warden of All Souls, Oxford, and Sir Hector Hetherington of the University of Glasgow, and proposed the West Highland Survey. The Development Commission, with its ostensible mission to promote rural development, was

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[22] Ibid.
[23] Fraser Darling to Huxley, 10 October 1942, WRC MS 50; see also Fraser Darling to P.J. Sisam, 10 October 1942, Naturalist on Rona, OUP 803648.
[24] Fraser Darling to Huxley, 20 October 1942, WRC MS 50.
[25] Fraser Darling may have had the idea of the Survey as early as 1939: Anne Chisholm, *Philosophers of the Earth* (London, 1972), 47.
[26] Fraser Darling to McWilliam, 6 June 1944, PRO D 4/380; Fraser Darling to Huxley, 20 October 1942, WRC MS 50.

the logical body to approach for funding and official, government recognition. Fraser Darling had wedged his foot in through his part-time work demonstrating and advising for the Department of Agriculture; before long, Tom Johnston was rallying for his proposal for 'the establishment of a centre for sociological investigation and for advisory and demonstration work in the Western Highlands...'.[27]

In establishing demonstration crofts, advising, and producing weekly newspaper articles for the Highland press, Fraser Darling emphasized the selflessness of his dedication to these tasks. He confided in Laird that the 'work of rehabilitating crofting agriculture is an ideal', the pursuit of which could conceivably be 'detrimental to personal advancement' and entail 'a good deal of disappointment & heartbreak'.[28] J. Morton Boyd believes 'the work which [Fraser Darling] did among the crofters in the northwest Scotland was probably the most sincere and selfless he ever did'.[29] Certainly, Fraser Darling worked for little money, especially through the war years and the economic instability of post-war Britain. At the same time, however, he was desperate for work and regular pay after the end of his seal studies on North Rona. So dire were his finances that his editor at Oxford University Press felt compelled to make advance payments to him.[30] The Fraser Darlings' life on Tanera was precarious as they relied on his popular books and articles and, not unlike many crofters, on poor soil for their subsistence.

Sincere personal ambition also lurked in Fraser Darling's work in the Highlands. His actions and letters during the advising and later Survey years betray an acute mind that was very aware that the Highland problem could be his great study. With government authority behind him, Fraser Darling felt assured of solving the problem: saving the crofters, their land, and their culture. Emphasizing the projects as selfless acts was part of his self-promotion. On the subject of remuneration, he implored Laird not to pay him too much: 'I expressly do not desire to receive any considerable remuneration while I can continue to

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[27] Department of Agriculture for Scotland to Fraser Darling, 23 September 1944, NAS WRH AF 70/240.
[28] Fraser Darling to Laird, 20 November 1942.
[29] J. Morton Boyd, *Fraser Darling's Islands*, 194.
[30] Sisam to Fraser Darling, 26 January 1939, OUP 803648.

earn my living by other means. I shall be working with poor folk & shall prefer to go among them as a poor man, in the same way that I started with a property & land as poor or poorer than their own.'[31] However, this did not stop him from constantly requesting a higher salary throughout his tenure with the Department of Agriculture for Scotland.[32] He wanted to appear selfless but he needed the money. He also counted on a grand reception of his work. At its completion Fraser Darling begged Julian Huxley to propose him as a Fellow of the Royal Society on the merits of his achievements with the Highland Survey.[33] He also hoped for a fellowship at Cambridge and political appointments.[34]

Ironically, however, Fraser Darling never completed the task for which he was initially hired in 1943. Of the 'score or so demonstration crofts' Fraser Darling proposed to establish in the Highlands, none came about.[35] Considering the patterns of his life and work, this inability to complete the job comes as no surprise. The repercussions of this constituted barely a murmur but future similar failures, such as his directorship of Nature Conservancy's Red Deer Survey in the 1950s, his lectureship at the University of Edinburgh, and even his revisions of the West Highland Survey's report, had greater impact. Fraser Darling's primary problem was a want of balance. The same enthusiasm, which so endeared him to Johnston and overrode others' doubts, prevented him from completing contracted work in the timely fashion his employers required. His numerous commitments and interests ensured that he was unable to complete satisfactorily anything he began. By the time his advising and demonstrating duties began in April 1943, he was already immured in the planning of another, bigger, and better scheme: the West Highland Survey.

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[31] Fraser Darling to Laird, 20 November 1942, NAS WRH AF 70/240.

[32] See for instance the Department of Agriculture's Record Book on 22 November 1944, in which they note and discuss Fraser Darling's request for a raise. McWilliam suggested no raise, others agreed, and one said Fraser Darling 'is really rather impudent': 25 November 1944, NAS WRH AF 70/240

[33] See Fraser Darling to Huxley, 10 October 1955 and Huxley's responses 11 October 1955 and 15 December 1955, WRC MS 50. Fraser Darling's efforts to become a Fellow of the Royal Society of London were never realized. Huxley told Fraser Darling his application would be fruitless due to the nature of his work.

[34] See E.H.E. Havelock to Sir Keith Murray, 9 March 1951, PRO D 4/1707.

[35] Fraser Darling to Huxley, 20 October 1942, WRC MS 50; Fraser Darling's Reports of 1 April 1943 - 31 March 1944, NAS WRH AF 70/240.

That this planning impeded upon his ability to complete his demonstration job is significant for it would become a common pattern and problem in his future work.

Yet plans went ahead for the West Highland Survey. When his meeting with the Development Commissioners initially failed to convince them, Fraser Darling turned to Wannop and Laird for ideas.[36] Over the next couple of months, he begged Laird to consider the project:

> I feel more & more the necessity for the survey side and the collection of data, before we can truly formulate a policy of rehabilitation for the West Highlands. We want to know the facts, not nebulous generalizations. I should like particularly to know the reaction of the Secretary of State to this attitude and approach, and I should welcome the opportunity of discussing it with him some time.[37]

Though only a part-time employee of the Department of Agriculture, and to some an insignificant one, he was full of big ideas and dreams. He clearly thought he had the ability to shape Highland policy if only he could persuade the government to sanction it.

The job Fraser Darling envisioned undertaking for the Government was outlined in a seven-page document entitled, 'Memorandum on the West Highland Problem and the Establishment of a Preliminary Sociological Investigation and Agricultural Advisory and Demonstration Centre in the Crofting Areas', and submitted to St. Andrews House in the Autumn of 1943. He had honed his projected scheme since his disappointing meeting with Hetherington and Adams earlier in the summer. In this document Fraser Darling first outlined the Highland problem; then he proposed the project; and, finally, he described the ways and means by which it would proceed.

Fraser Darling's primary argument in his proposal was that 'the West Highland problem is primarily sociological rather than economic and has a history dating back to the social disruptions caused by the Rebellions of 1715 and 1745'.[38] He contended that the social structure of the pre-Rebellion Highlands, though perhaps 'inelastic and primitive', utilized the region's natural resources in such a way that a considerable population was able to

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[36] See Fraser Darling to Laird, 1 September 1943, NAS WRH AF 70/240.
[37] Fraser Darling to Laird, 5 November 1943.
[38] Fraser Darling, 'Memorandum on the West Highland Problem and the Establishment of a Preliminary Sociological Investigation and Agricultural Advisory and Demonstration Centre in the Crofting Areas' (1943), 1, PRO D 4/380 and NAS WRH AF 70/240.

sustain itself. He declared that the modern economic and demographic problem of the Highlands arose from a 'lack of social structure since the Rebellions'.[39] Consequently, two hundred years of disoriented social structure created an increasingly worse situation for the region and the majority of its people, the crofters. Fraser Darling argued that 'the problem of the West Highlands is that of a sick society', a problem that began with the Rebellions but was compounded through neglect, creating the rapid depopulation statistics, agricultural ignorance, and a defeatist attitude by the present.[40] He concluded that neglect had barred the Highlands from the benefits of the Industrial Revolution and agricultural improvement so that by 1943, 'we have the picture of a primitive society situated on the fringe of a highly industrialized one'.[41]

To reverse the Highland problem, Fraser Darling proposed a project that would instil methods of 'adequate and intensified husbandry [that] would serve as a powerful buffer to the West Highlands' in the modern world.[42] In short, he felt the region required the attention it had lacked for more than two hundred years to establish it in a healthier position in the modern world. In this memorandum, he argued that an ecological study was necessary to improve agriculture to make the region more economically competitive. The way forward lay in agriculture as Fraser Darling saw this as the base upon which the crofter society and economy was built.

The proposed project was based upon Fraser Darling's work on Tanera and his advising and demonstrating work, which he declared 'unsatisfactory' for solving the problem.[43] On Tanera he claimed to have evolved 'with his own labour and small resources...a distinctive crofting husbandry suited to the environmental conditions of West Highland' that raised the production of foodstuffs in 'physical conditions of work [that] have been as bad as or worse than on the great majority of crofts'. Claiming success at solving the Highland problem at a local level, he was confident he could apply the same

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[39] Ibid
[40] Ibid, 2.
[41] Ibid.
[42] Ibid.
[43] Ibid, 3.

principles on a regional scale. He noted that the crofters are eager for his advice, but that this was not enough. To fix the problem completely, he saw a need for socio-biological investigation as well as advising. To this end, he proposed the creation of a 'foundation' to 'gather facts, record data,...and treat the West Highland problem in the impartial spirit of research', in addition to continued advising and demonstrating.[44]

As for the methodology of this 'impartial' research, Fraser Darling proposed an ecological study: 'work...would treat the West Highland culture...as a whole, and in the definition of ecology, study the organism in relation to its whole environment.'[45] Ecology appealed for such a study on many fronts. Foremost, ecology was a science, and this promoted an assumption that it was therefore objective and capable of uncovering truth by way of facts, laws, and predictable patterns. Equally important, it was a broad science; its holism was attractive for the study of a human problem, which included not only problems of human psychology, economics, and society, but problems of land and water use, climate, geology, flora, and fauna. Equally attractive was ecology's temporal component. It surveyed natural change over long periods of time—following plant and animal communities through generations of natural relationships within an environment. Because the Highland problem was as much a contemporary as a historical problem, ecology seemed a logical tool with which to study it. To complete this project, Fraser Darling sought five years of relative freedom from formal governance to pursue the studies with only a skeleton staff of himself, a research assistant, Gaelic-speaking assistants, and a typist.[46]

Fraser Darling presented the project to make it appealing to the Government of wartime Britain. He emphasized a need for healthy agriculture in the Highlands to offset shortages after demobilization. As many Highlanders were serving abroad, he stressed a need to improve Highland agriculture for the return of servicemen: 'the project would stand as of [sic] an earnest attempt to create the conditions of a contented and productive life of the many Highlanders now serving in the Forces—for they will be the active Highlanders of

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[44] Ibid.
[45] Ibid, 4.
[46] Ibid.

the immediate future—and would serve in some measure to implement the recommendations of the Hilleary Report.'[47] He promised to complement, build upon, and work with the findings of Scottish Economic Committee's Hilleary Commission (1936-1938). As agricultural productivity was an essential issue for Johnston and the planners of post-war Britain, Fraser Darling's appeal to their sensibilities, not to mention their purses, was timely.

In January 1944, Fraser Darling gained Johnston's approval, which eased the funding and planning of the project through the Department of Agriculture, the Development Commission, and the Treasury considerably. He met with Johnston at St. Andrews House on 13 January. Fraser Darling had to defend his proposed Survey in light of the comprehensive surveys of the past: 'he agreed that the Hilleary and other Committees collected a considerable amount of useful information, and made many valuable suggestions, but thought that their investigations had been rather superficial and had not penetrated to the underlying causes of the present distressed condition of the Highlands.' In contrast, Fraser Darling promised to uncover the root sociological and economic problems of the Highlands that created the more superficial problems of transportation, energy, and markets. The Secretary of State clearly liked his plan and promised that the Department of Agriculture would submit the scheme to the Development Commission and the Treasury for consideration.[48]

It was helpful that Johnston was so sympathetic to the idea because McWilliam and Caie were apprehensive of extending Fraser Darling's employment. McWilliam wrote to Caie questioning the necessity of 'further investigation of the West Highland problem'. He noted that 'it has been subject of enquiries by a succession of commissions & committees for the past 60 years—from the Napier Commission to the Hilleary Com[mission] not to mention the reports of the Crofters' Commission & the Congested Districts Board'. In 1939 the House of Commons would have implemented some of the Hilleary Commission's

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[47] Ibid.

[48] Minutes of 13 January meeting between Fraser Darling and Johnston, 17 January 1944, PRO D 4/380.

recommendations had war not broken out. With the Commission's ideas on hold, McWilliam saw no reason 'to complicate the issue with another batch of recommendations'.[49] And, not surprisingly, Caie questioned 'the suitability of Dr. F.D. for such work'.[50] Not all within the Department, however, were completely adverse to the scheme; one person mildly admonished Caie, suggesting that if Fraser Darling had been successful thus far, he could be useful to the Department and the Scottish Agricultural Organisation Society.[51]

With the approval of Johnston, however, the worries of Caie and others were ignored. In his letter to the Treasury, Laird wrote that

> The Secretary of State is satisfied that since his appointment Dr. Fraser Darling has given material assistance to the crofters in the Highland area in which he has been working and feels that a very valuable contribution to the solution of the crofting problem in the Highlands and Islands of Scotland might be expected to follow the extended scope of the work now proposed.[52]

Johnston saw the Survey as an extension of Fraser Darling's initial work for the government. Thus, he made it possible for Fraser Darling's grand scheme to proceed despite protest within the Department of Agriculture for Scotland. It is also clear that at least at the beginning of the affair, Johnston and the government thought Fraser Darling could help solve the Highland problem. Consequently, Fraser Darling assumed his work would affect Highland policy. However, by the time the Survey was completed in 1951, more than six years later, Britain had a new Government, a different Secretary of State occupied St. Andrew's House, and a new set of priorities had replaced the interests of each. Fraser Darling was sheltered from these changes; he was left relatively alone to his studies during the Survey. The implications of these changes, however, only came to a head in 1949 when the research portion of the Survey was complete and only the writing of the Survey's Report remained.

Immediately after his meeting with Johnston and the Department of Agriculture in 1944, Fraser Darling endangered the future of the Survey at a press conference outside St.

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[49] McWilliam to Caie, Records Book, 8 September 1943, NAS WRH AF 70/240.
[50] Caie to Laird, Records Book, 9 September 1943.
[51] A.G. to Caie, Records Book, 23 May 1944.
[52] Laird to H.M. Treasury, 4 February 1944, PRO D 4/380.

Andrews House. He managed to anger crofters and make himself a controversial figure on Highland policy in a very public light when he announced that the West Highland crofting population had a 'social problem much more than an economic one'.[53] He declared: 'Men have lost their skills and way of life. Their attitude of mind has deteriorated very seriously. We have to cure the defeatism that is in them.' He also insulted Highland cooking: 'the people of the Highlands are poor cooks. Their standard of nutrition is poor.' But his most contentious position was his championship of lairds in the solution of the Highland problem: 'I should like to see a conference of lairds in Edinburgh setting down a policy for the Highlands. There is nothing to beat a good laird yet.'[54] Letters poured in with opinions on Fraser Darling's declarations, and comments ranged from utter ridicule to compliment. Most applauded his opinion of a need for proper soil fertilization and afforestation, but it took him a series of articles in the *Glasgow Herald* to sort the political quagmire he had created by his more radical recommendations.[55] His more outlandish and ill-judged comments understandably managed to raise the ire of the very people he hoped to help.

Fraser Darling's biographer, J. Morton Boyd, claims Fraser Darling often felt misquoted, particularly on his opinion that defeatism pervaded the Highlands.[56] However, if he was misconstrued on defeatism, it was for good reason. Not only did the *Glasgow Herald* quote him in Edinburgh commenting on it, the minutes of his meeting with Johnston clearly state his opinion of the Highland problem:

> Dr. Darling's basic opinion was that the West Highland community is 'psychologically sick' and is suffering from the spirit of defeatism, which has grown during the last 200 years. This spirit is evident in the inertia with which many of the Highlanders receive any suggestions for the improvement of their agriculture and the increase of their production.[57]

In addition, Fraser Darling wrote it himself in his Memorandum proposing the Survey: 'an attitude of defeatism is widespread and is understandable when one looks at the poor crops

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[53] 'West Highlands a Social Problem: Crofters' "Defeatism"', *Glasgow Herald* (15 January 1944).
[54] Quoted in Ibid.
[55] Fraser Darling, 'Problems of the Highlands', *Glasgow Herald* (2 parts; 7-8 March, 1944).
[56] Boyd, *Fraser Darling's Islands*, 190-191.
[57] Minutes of 13 January meeting between Fraser Darling and Johnston, 17 January 1944, PRO D 4/380.

and low standard of attainment in the domestic arts.'[58] As seemed often to happen, he had a way of raising emotion and stating big opinions; but regretting it later, he conveniently forgot he had ever said it in the first place. After much heated discussion with John Lorne Campbell on the idea of a lairds' parliament, that, too, disappeared from his agenda.[59]

Nevertheless, plans for the West Highland Survey went ahead. The controversy over Fraser Darling's press conference appears to have had little effect upon his employment. His powerful ally, the editor of the *Glasgow Herald*, Sir William Robieson, ensured that Fraser Darling's opinions were always in print. Johnston's initial reason for instigating a working relationship with Fraser Darling was for his popularity, enthusiasm, and controversy; he made the Highland problem newsworthy and encouraged people to think about rural development, agricultural improvement, and conservation: all issues which were of great interest to Johnston. Thus in 1944, the Treasury allotted 1,700 for the Survey's first year. Fraser Darling sold Tanera and moved onto an estate owned by the Department of Agriculture for Scotland at Loch Sunart, Strontian in the late spring of 1944. Over the next six years, the Development Commission doled out approximately 18,000 to finance the Survey.[60] Considering the Survey began during a war and ran through the economic crises of the immediate years following, this was a substantial amount of money. Fraser Darling earned between 600 and 900 per annum.

As he had wished, Fraser Darling was left relatively alone to conduct his research. Few letters passed between him, the Department of Agriculture, and the Development Commission other than financial reports and bi-annual research reports. The Department of Agriculture's and Development Commission's records are quite unrevealing for the majority of the period covering the Survey. In one last effort to limit Fraser Darling's scheme, the Department of Agriculture proposed cutting the advising and demonstrating,

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[58] Fraser Darling, 'Memorandum', 2.

[59] See correspondence between J.L. Campbell and Fraser Darling, J. Morton Boyd, Frank Fraser Darling papers, StAUL MS 38449/32.

[60] In today's terms, this figure is approximately 430,000: John J. McCusker, 'Comparing the Purchasing Power of Money in Great Britain from 1264 to Any Other Year Including the Present', *Economic History Services* (2001), URL: http://www.eh.net/hmit/ppowerbp/ [accessed 13 November 2002].

citing that Lord Alness had just convened a committee on the subject of agricultural education.[61] However, the Development Commissioners, who after Johnston were Fraser Darling's strongest advocates, rejected this. They recommended full approval of the scheme, and, ultimately, the Survey went ahead in its complete form.

Though correspondence during the Survey years was limited, Fraser Darling angered his employers in 1946 by publishing an article in the *Glasgow Herald* that was 'obviously based on the work of the Survey'. To W.H. Senior, another critic of Fraser Darling within the Department of Agriculture, the episode 'certainly confirms my fear that the Survey is unlikely to function as a research unit on the lines as we would expect but rather to provide new matter for Darling as a writer'.[62] Throughout the Survey years, Fraser Darling wrote articles for the *Glasgow Herald* and Highland papers. He also found time to write *Natural History in the Highlands and Islands* (1947). The Department was uneasy not only about Fraser Darling's opinions, but also about his career as a popular writer. As they grumbled about his employment, the Development Commission continued to champion him, ensuring he received the funding and support to continue his research. Each year the Commissioners sanctioned evermore funds for the Survey, noting that 'they are satisfied that the Survey is being conducted with enthusiasm and ability and that it will yield data of considerable importance for the subsequent framing of a further policy for the Highlands and Islands'.[63]

The support of the Development Commission eased Fraser Darling's dealings with the government, especially after Johnston left office. However, the 1940s were difficult years for the Commission, making its support limited. Although the Commissioners were well-respected, many had held office since the earliest days of the Commission, which had now entered a period of stagnation. Alan Rogers, who has examined the Commission's papers extensively, notes that 'by the early 1940s the Development Commission seemed rather to have lost its way and had become marginalized by the more important players in rural

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[61] See 'Addendum to Memorandum on the West Highland Problem submitted by Dr. Fraser Darling' (1944), PRO D 4/380.
[62] W.H. Senior to Havelock, 26 August 1946, NAS WRH AF 70/240.
[63] Havelock to Treasury, 17 March 1948, PRO D 4/752.

development'.[64] With the death of its first, and only, chairman in 1946, it faced an uncertain future until Lady Albemarle assumed leadership in 1949. Until the mid-1950s, the Commission's political influence was limited and its access to funds seriously restricted.[65] In addition, it remained an advisory body, albeit a rich one, without executive authority.

It is unclear whether the crofters approved of Fraser Darling. Newspapers saw him on the crofters' side against an ignorant government. The *North British Agriculturist and Farming News* heralded his employment: 'in his case we have the impact of a scientific and progressive mind upon what we may call the stay-put social and agrarian problem of the Scottish Highlands.'[66] Letters to the editor reveal positive and negative reactions. But as crofters were not prone to writing themselves, their testimonies are disproportionably under-represented in the historical record. Callum Morrison, who worked on the Survey, remembered that Fraser Darling 'was never fully accepted by the crofting community'.[67] John Lorne Campbell, owner-occupier of the Isle of Canna, declared that 'like other farmers in this part of the world I could not accept him as an ultimate authority on Highland agriculture...'. He recalled that his 'weekly articles in the *Oban Times* telling Highland farmers what they should do were often the subject of scathing remarks around Corsons' mart in Oban'.[68] Though not a crofter, Allan Cameron of Strontian claimed he spoke for a number of them when he complained to the Department of Agriculture in 1948: 'will you kindly inform us what the Highlands & Islands are going to derive from this survey carried out by Dr. Darling...'. He believed the Survey was 'a waste of public money' after Fraser Darling told him his work would 'show something' in 100 or 500 years.[69]

When Cameron wrote his letter, Fraser Darling was completing the Survey and preparing to begin its Report. All the fieldwork was complete by June 1949, but Fraser

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[64] Alan Rogers, *The Most Revolutionary Measure: A History of the Rural Development Commission, 1909-1999* (Salisbury, 1999), 63.
[65] Ibid, 65.
[66] 'A Call to the Highland Lairds', *The North British Agriculturist and Farming News* (21 January 1944).
[67] Callum R. Morrison, obituary of Frank Fraser Darling, (np, nd), StAUL MS 38449/26; Morrison was probably one of the crofter-born assistants to the Survey.
[68] Campbell to Boyd, 15 January 1987, StAUL MS 38449/26.
[69] Allan Cameron to Department of Agriculture, 19 January 1948, NAS WRH 70/240.

Darling was unhappy. For him, 1949 stood out as a painful year in which all his aspirations and hopes seemed to disintegrate. His relationships with the Department of Agriculture, the government, and his scientific peers all seemed to sour suddenly. Much of this, however, could have been a product of his imagination. Max Nicholson reminisces that Fraser Darling often suffered from 'actual or imagined setbacks', and this year in particular had both.[70] In many ways, this was the year that drove him to the United States; from 1949 through 1972 there was a perceptible shift in his work from Scotland and Britain to the U.S.. In April, he wrote to Frank Kendon, his friend and editor at Cambridge University Press:

> in the ways of affairs I have had one of the most trying years of my life. ... Things began that way last May with a review of my [*Natural History in the Highlands and Islands*] Book. All manner of nastiness followed and the matter isn't cleared up yet.... The Gov't in Scotland has also acted in a cynical and dishonest way towards the Survey I ran and I come away rather broken hearted, whatever I may say in the contrary. Lastly, things have gone very differently personally than I had hoped in connexion with the Nature Conservancy....[71]

He also cited 'meanness, speciousness, dishonest thinking and jealousy' from unexpected quarters.[72] After the thrashing he received from Professor Wynne-Edwards of the University of Aberdeen in his review of *Natural History*, Fraser Darling felt dejected and disconnected from his academic peers.[73] When the Nature Conservancy was established that same year, he was dismayed to learn that the chair of the Scottish division had been offered to Dr. John Berry instead of himself.[74] Finally, there was the matter of the Department of Agriculture for Scotland.

It is not clear what exactly the trouble was between Fraser Darling and the Department of Agriculture. An examination of the Department's and the Development Commission's records gives no indication that anything undue occurred. Fraser Darling probably finally recognized the Department's festering disapproval of his project. Boyd says he later indicated a 'personal dislike of the man with whom he worked in St. Andrews

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[70] Max Nicholson, *The New Environmental Age* (Cambridge, 1987), 171.
[71] Fraser Darling to Frank Kendon, 28 April 1949, quoted in Boyd, *Fraser Darling's Islands*, 225-226.
[72] Ibid.
[73] V.C. Wynne-Edwards, review of *Natural History in the Highlands and Islands*, by Frank Fraser Darling, *The Scottish Naturalist*, 60 (1948), 59-61; Boyd, *Fraser Darling's Islands*, 223-334.
[74] See T.C. Smout, *The Root of Green Consciousness* (Perth, 1991), 22-23.

House'.[75] There exist many possibilities, except J.M. Caie, who retired in 1945. By 1951, however, even the Development Commission was not as enthusiastic about the Survey. Their previous reassurances to the Treasury that the Survey was important for future Highland policy seemed long past as they negotiated for alternative publication venues and appeared eager to bury the Survey's report.[76] In the final days of the Survey, Fraser Darling was clearly upset and he wrote to a friend within the Department of Agriculture that he feared his work would come to nothing because his conclusions were not what the Department desired. He accused the government of 'carefully seall[ing] off' the Survey.[77] Fraser Darling could not understand what was wrong, nor did he know whom to blame: 'Until recently I blamed the socialists for the way the Survey was sealed off; I was wrong. I see now that St. Andrews House is the trouble.'[78]

It did not help that Fraser Darling had difficulty completing the Survey's report on time. In November 1949, he applied for an extension on the Survey, which was supposed to be completed by the end of the year. He cited his other government duties, such as the National Parks Committee for Scotland and the Nature Conservancy, as reasons for the delay.[79] There were also obligations in the United States after he accepted a six-month Rockefeller Fellowship to tour conservation sites in the U.S. and Mexico. His growing family with his second wife Averil Morley, his research assistant during the Survey, and a move from the Highlands to Berkshire also divided his time and efforts.[80]

Still, Fraser Darling was disappointed by the government's reception of the completed report: *The West Highland Survey: an essay in human ecology.* Boyd recounted that later in life Fraser Darling bitterly complained of the government's lack of response to his work: 'Do you know that I never received an acknowledgement when I sent the final report of the Survey to St. Andrew's House? Six years' work and not even an Official Paid Post

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[75] Boyd, *Fraser Darling's Islands*, 207.
[76] Havelock to H.M. Treasury, 17 March 1948, PRO D 4/752.
[77] Fraser Darling to D. Edwards, 3 June 1950, West Highland Survey, Preparation of Final Report, NAS WRH AF 70/241.
[78] Fraser Darling to Havelock, 5 January 1952, PRO D 4/1707.
[79] Department of Agriculture for Scotland to H.M. Treasury, 25 November 1949, PRO D 4/742.
[80] See Havelock to Murray, 9 March 1951, PRO D 4/1707.

Card in reply!'[81] With the report complete by the early summer of 1951, it was not until April 1955 that *West Highland Survey* was published by Oxford University Press. This lag between completion and publication gnawed at Fraser Darling, not to mention the public who by then were well aware of his survey. He was not alone in presuming the Survey would influence government policy, and the Highlands' press demanded their right to examine it. Ultimately, however, the Report was doomed to obscurity; for four years it was shuttled to and fro between governmental departments and other bodies, all of which were restricted to confidentiality.

But Fraser Darling did not suffer silence from the Department of Agriculture upon posting the completed report of the Survey, despite his claims to Boyd and what has became common 'fact'.[82] Records from the Department of Agriculture and the Development Commission show that Fraser Darling was often in contact with the government in the final stages and completion of the Report. After a three-month extension, Fraser Darling submitted parts one, two, and four on 12 June 1950, after which he flew to the United States for another conference. He did not submit the final parts of the Report until the early summer of the following year. The Department of Agriculture's Correspondence Book shows that he and the Department were in contact throughout the period except when he was abroad.[83]

What rankled Fraser Darling most was the delay in the wider, public printing of the Survey's Report and the government's apparent silence in explaining it. Initially, nearly 100 copies of the Report were mimeographed and circulated among various Government and public bodies as each part was submitted. Independent readers were requested to send their comments directly to Fraser Darling. By January 1952, seven months after the Report's completion, Fraser Darling was complaining to Laird that he had neither received any comments nor had been notified of any publication plans for the Report.[84] He feared for his

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[81] Quoted in Boyd, *Fraser Darling's Islands*, 207.
[82] See for example James Hunter, *The Claim of Crofting* (Edinburgh, 1991), 98.
[83] Records Book, NAS WRH AF 70/241.
[84] Fraser Darling to Laird, 5 January 1952.

reputation: 'I personally am certainly suffering academically [and] publicly by the Report being kept back.'[85]

There were two major reasons for the delay. First, the Development Commissioners were reluctant to publish the Survey under their name. They decided not to submit it to the Stationery Office where an officially endorsed document would normally be published. Instead, they decided to subsidize its publication through Oxford Clarendon Press and attach a preface that disclaimed their endorsement of its conclusions.[86] The second cause of delay was the Report's editing. The manuscript was vast, and both Oxford and the Development Commission's outside reader, Joseph F. Duncan, recommended a twenty-percent reduction and extensive editing.[87] Duncan recommended publication but suggested significant changes—cutting tabular material especially. He also expressed 'shock' at the Survey's cost and a belief that it would 'come in for criticism from all sides, much of it justified'.[88] Fraser Darling fought hard to keep the tables, but he bitterly capitulated in the end. Expressing distrust in Duncan's abilities, something he often did when someone disagreed with him, Fraser Darling did not appear to act upon his other editorial suggestions.[89] Except for the exclusion of most of the tables, the early typescript from 1950 differed little from the published version of 1955.[90] Nevertheless, the revisions and the compilation of an index took Fraser Darling a long time due to domestic issues and his commitments in Edinburgh and the United States.[91]

For Fraser Darling the Survey and its Report were his *magnum opus*, and the publication delay forestalled an opportunity for glory, personal satisfaction, and academic advancement. Despite shunning academia up to this point in his career, he aspired to a

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[85] Ibid.
[86] Development Commission to J.C. Gimpel, 4 March 1952, PRO D 4/752. It also notes this was not an entirely uncommon practice
[87] A. Norrington to P.J. Spicer, internal memo, 18 January 1952, West Highland Survey, OUP 827202.
[88] J.F. Duncan to Havelock, 21 January 1952, PRO D 4/1707.
[89] Fraser Darling to Havelock, PRO D 4/1707; see for instance Fraser Darling's condemnation of Wynne-Edwards after his negative review: Fraser Darling to E.M. Nicholson, 12 May 1948, StAUL MS 38449/32.
[90] *West Highland Survey Reports*, Typescript (1950).
[91] See Lincoln to Spicer, 24 July 1953, OUP 827202.

professorship after completing the Survey, and in 1953, he was appointed Senior Lecturer in Ecology and Conservation at the University of Edinburgh. The position was largely created for Fraser Darling in light of his Highland studies, and, unfortunately, it would disintegrate in a similar manner, finally ending sourly in 1958.[92] In addition, he hoped to join Britain's scientific elite as a fellow of the Royal Society. Soon after the publication of *West Highland Survey* in 1955, he entreated his friend Julian Huxley to propose him for Fellowship, 'the basis on which such an aspiration would rest would be *A Herd of Red Deer*, *Bird Flocks*, and *West Highland Survey*.... These three books all had new ideas which have had their impact, [and] *West Highland Survey* breaks into new ground entirely, [and] represents a pretty solid body of work'.[93] Though he failed to be elected to the Royal Society despite repeated attempts, his efforts to launch his future career through the Survey show that Fraser Darling believed the Survey was a significant scientific achievement.[94]

Fraser Darling was not alone in his feverish anticipation of the Survey's publication. Universities and social services bodies in the Highlands, and even Nova Scotia, Canada, petitioned the Department of Agriculture to examine the completed Survey and its conclusions.[95] The Highland newspapers and *The Glasgow Herald* grew impatient for a glimpse of the Report; the headlines showed a sincere desire for not only an explanation for the delay but a strident demand to see the Report: headlines included 'Mystery of the Missing Survey'; 'Why is the Highland Survey still so hush hush?'; and 'No Immediate Publication'.[96] Within the Highlands and Islands, Fraser Darling's survey was well known. After all, he and his assistants had been thorough, cataloguing and measuring everything from numbers of sheep to baking skills. As a government-sponsored project that implied policy changes, it is not surprising the crofters were eager to learn the results and

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[92] Lord Michael Swann to Boyd, 9 March 1985, StAUL MS 38449/30.
[93] Fraser Darling to Huxley, 10 October 1955, WRC MS 50.
[94] Fraser Darling wrote to Huxley again about fellowship to the Royal Society on 9 October 1961.
[95] See NAS WRH AF 70/241.
[96] Articles include 'Publish Highland Survey', *Daily Record* (15 December 1951), 'Mystery of the Missing Survey', *Stornoway Gazette* (21 December 1951), 'Why is the Highland Survey still so hush hush?', *Sunday Mail*, (30 December 1951), '7-year Western Highlands Survey stays a secret', *News Chronicle* (5 January 1952), and 'No Immediate Publication', *Glasgow Herald* (12 January 1952). All of these articles can be found in NAS WRH AF 70/241.

conclusions that could affect their lives. It infuriated them that the report was in the hands of policy-makers when they were given no opportunity to see its contents: 'it is causing anxiety in the Highlands that a document of such importance is being withheld from the people whom it concerns more specially as it is understood to be circulating through Government departments and may possibly be influencing official policy.'[97] *The Stornoway Gazette* reflected some of these concerns:

> it may be the basis of official government policy at this moment, but the people of the Highlands have no access to it. The picture of the Highlands situation given by the survey may be true or false, the recommendations may be wise or foolish, the impression created may be favourable, the people concerned have no means of knowing.[98]

The Highlanders asserted their right through the press while the Department of Agriculture always replied that they awaited revisions.[99] However, in January 1952, the Department sent either the Report or portions of it to newspapers. The *Glasgow Herald* ran an extensive article on the Report's contents later that month.[100] The press and crofters were placated; at least, the unpublished survey was no longer a topic for the press after this.

The reactions of those who examined the Report before its publication in 1955 were mixed. Silence appears to have been the most common reaction, and though truly more a lack of reaction, it is an interesting problem in itself. The compiled statistical data, especially that gathered by the township surveys, was of particular interest to academic and public bodies in the Highland region. In the Scottish Education Department, the Chief Inspector of the Highland Division had high praise for it.[101] In general, however, the Department of Agriculture's records are remarkably bereft of reactions to the Survey. When Fraser Darling complained he had not received any comments, it does not appear to have been the Department's fault; rather, it seems there were simply few comments, at least which exist within the historical record. This is strange considering the amount of money the

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[97] 'Publish Highland Survey', *Daily Record* (15 December 1951).
[98] 'Mystery of the Missing Survey', *Stornoway Gazette* (21 December 1951).
[99] NAS WRH AF 70/241.
[100] 'Policy for Highlands under Review', *Glasgow Herald* (28 January 1952).
[101] Quoted in memo, 9 December 1950, NAS WRH AF 70/241.

government devoted to the project and the assumption by many that the Survey would have some practical application.

Fraser Darling predicted the Report would be ill-received. He wrote D. Edwards of the Department of Agriculture for Scotland mere days before submitting the first parts of the Survey. He was pessimistic about its reception:

> practically, I don't suppose it [the West Highland Survey] matters much.... the central theme of the Survey's conclusion, that the West Highlands and Islands represent a devastated habitat and that rehabilitation must be slow and start at the bottom will be entirely unacceptable. The Government won't like it because no Government wants to start a 100-year job; the Highlander won't like it because he takes it as a personal slight to say his countryside is devastated, and your Department won't like it because you can't do very much about it and I shall have merely made more trouble.[102]

Given these premonitions, it might seem surprising that Fraser Darling would take such offence when these fears became reality. However Fraser Darling was often prone to a false modesty within his correspondence.

Nevertheless, in many ways Fraser Darling's suspicions were quite apt. His 'cure' for the Highland 'problem' was conservation. His methods of conservation were largely untried or dependent upon obsolete practices of an earlier society and economy. They were thus without verifiable proof of successful application in the contemporary Highlands and Islands. Cynicism aside, Fraser Darling also made a significant point; that waiting a hundred or more years for the fruits of conservation was not practical in fixing immediate problems. His early critic from Strontian, Alan Cameron, had made the same point.

Isolated, and often insulated, from the world during the Survey years, Fraser Darling failed to follow the political changes in Britain, which would have meaningful impact upon his work. In the years immediately following the war, agriculture in the West Highlands actually experienced something of a boom as crofters profited from the nation's meat shortages and they continued to enjoy war-time subsidies.[103] Fraser Darling had benefited by the personal attention of the Secretary of State for Scotland during the war, but

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[102] Fraser Darling to D. Edwards, 3 June 1950.
[103] David Turnock, 'The Highlands: Changing Approaches to Regional Development', in G. Whittington and I.D. Whyte, eds, *An Historical Geography of Scotland* (London, 1983), 206.

Johnston's successors were not necessarily as sympathetic.[104] Rebuilding the devastated cities and countryside and feeding the population were the greatest concerns of the government, and the troubles of an extremely small proportion of the population such as the crofters were insignificant in comparison. However, to Fraser Darling, the Highland problem and the Survey remained paramount both to his own reputation and to the future of the Highlands.

It becomes clear that Frank Fraser Darling had powerful friends who took him great distances when it suited: Tom Johnston, the Development Commissioners, his early editors at Oxford University and Cambridge University Presses, Julian Huxley, and the editor of the *Glasgow Herald* all saw in him a potential for popularising and rousing emotion through his infectious enthusiasm. However, none of his benefactors had the ability to put his conclusions into action when that time came. Johnston's time in office was limited; the Development Commission was not an executive body and was going through a rough time of its own. Ultimately, the loss of first Johnston and then the Development Commission left Fraser Darling to his critics with little buffer, a situation that occurred in 1949.

Another component to the situation, however, was the nature of his own personality, and even his powerful friends could not protect Fraser Darling from himself. Many were aware of the prickly nature of his personality. In his history of the Environmental Age, Nicholson contrasts Fraser Darling to another man, who was 'good with people, and a good listener':

> Frank Fraser Darling brought to conservation great gifts for observation and profound reflection on ecology, conservation and their relation to human life and ethics. He lacked, however, a number of more mundane capacities that would have fitted him better to serve as a member of staff or of a senior committee, and his efforts to adapt to such environments tended to finish in mutual frustration....[105]

Fraser Darling was often his own worst enemy. His stubborn nature appealed in its enthusiasm but repelled in its inability for compromise, which led to hostility. W.J. Eggeling recalled him in a similar manner: 'he had an idea and stuck to that and would not compromise. He ignored practicality, wanted everything done at once, with no variation. It

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[104] John MacLeod, *Highlanders* (London, 1996), 339.
[105] Nicholson, *New Environmental Age*, 171.

was this inability to compromise that set St. Andrews House against him and saw so little of his ideas in [the] West Highland Survey implemented.'[106] In addition, Fraser Darling was plagued by mysticism and romantic notions, which he was unable to separate from his 'objective' work. Within the history of conservation, Nicholson places him in a far corner of environmentalism: 'he belongs at the far end of a spectrum that extends all the way from the most practical or political of conservationists to the poets and dreamers.'[107] Along with his dislike for mathematics and 'hard' science, Fraser Darling's aptitude for romanticism and mysticism had popular appeal but did not aid him in his academic and political posts.

Ultimately, the fiasco of the West Highland Survey was due to Fraser Darling's failure to court the Department of Agriculture for Scotland, the government body invested with the power to enact changes to legislation in the Highlands. It is clear that important figures within the Department objected to Fraser Darling and his ideas, and he failed to respond to their objections. The support of the Development Commission was not enough considering its lack of executive power. He needed the Department of Agriculture for Scotland.

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[106] W.J. Eggeling to Boyd, 19 November 1986, StAUL MS 38449/26.
[107] Nicholson, *New Environmental Age*, 171.

CHAPTER 3

THE REPORT OF THE WEST HIGHLAND SURVEY: AN ANALYSIS

The government's response to the West Highland Survey was ambiguous. Officials were reluctant to condemn it outright, preferring to let it languish instead. Its delayed publication and the government's unwillingness to claim any responsibility for its conclusions were the telling end of its immediate usefulness to the government. Despite the frantic clamouring for the report by the Highland press, the Survey also disappeared from view on this front, condemning it to the status of a mere reference to the Highland problem rather than the long-awaited 'cure' it had purported to be.

Frank Fraser Darling attempted to accomplish many things at once in his hopeful *magnum opus*, the Survey's report, *West Highland Survey*. In it, he planned 'to gather a solid body of facts' on the West Highland region, and for these 'facts' he pledged thorough analysis and synthesis; in addition, he promised to set 'a foundation for a future policy for the region'.[1] To accomplish this impressive feat, he pursued a rather novel route into the contentious realm of 'human ecology'. Human ecology was a broad and ill-defined interdisciplinary science which some hoped would bridge the gap between the biological and social sciences. As such, Fraser Darling believed it was the perfect tool with which to understand and solve the biological and social problems of human society. The plan was undeniably ambitious, but given his research experience and the development of his scientific ideas, it was a logical step in his career.

By the 1940s, however, the foundations of Fraser Darling's human ecology were rooted in antiquated models of ecology. The holism of Clementsian ecology provided a basic structure to his ecological thought and developing social philosophy; and, W.C. Allee's theory of aggregation and cooperation bolstered his romantic interpretation of life and hopeful vision for the future. By the end of the Second World War, however, there had been a perceptible shift in ecological thought, which had left these models faltering.

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[1] Frank Fraser Darling, preface, in Frank Fraser Darling, ed, *West Highland Survey: An Essay in Human Ecology* (Oxford, 1955), vii.

Nevertheless, with this intellectual base, the Highlands and Gaelic culture became Fraser Darling's essential case study, in which he developed and proselytized a holistic environmental philosophy that he hoped would transform British society. The uncertainty of the Survey's scientific foundations, however, undermined the immediate political usefulness of the Survey's conclusions and the legitimacy of his more enduring environmental philosophy.

Fraser Darling divided the *West Highland Survey* into six parts: history, geography, population, ecology, agriculture, and sociology. Ecology was the overarching theme and was the specific lens through which he observed and analyzed the Highland problem. He did not shy from this obvious bias because he believed ecology was a discipline that transcended all others. Though ecology was traditionally confined to the study of the non-human world, he firmly believed it had an immediate social function, and the example of the Highland problem was his evidence. He agreed with the American Paul Sears that 'The social function of ecology is to provide a scientific basis whereby man may shape the environment and his relations to it as he expresses himself in and through his culture patterns'.[2]

The establishment of an ecological base for the understanding of the Highland problem was, therefore, a major objective of *West Highland Survey.* Fraser Darling maintained that

> the problem of the Highlands should be investigated from the biological point of view, looking on the people—without the least disrespect—as members of the indigenous fauna and social animals, and inquiring what were the factors of change in the environment, or in them, which were rendering man a slowly failing species in that environment.[3]

As ecology was the study of the relationships of the organic and inorganic in a particular environment, he refused to separate humans and their actions from an environment. T.C. Smout argues that Fraser Darling was influenced by early Scottish ecologists, like Patrick

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[2] Quoted in Fraser Darling, 'The Ecological Approach to the Social Sciences', *American Scientist,* 39 (1951), 245.
[3] Ibid, 246.

Geddes and James Ritchie, in this respect.[4] He postulates that Scottish ecology 'was remarkable in seeing man himself as a prime actor among other animals' in contrast to English ecology, which pursued 'ecological study uninterfered with by man'.[5] To Fraser Darling, ecology was a super-science with great potential: 'The science of ecology deals with the causes of observed biological phenomena, and it should be expected to lay bare multiple-factor causation....But it is also concerned with consequences and ramifications. The practical value of ecology...is the ability to forecast consequences of certain courses of actions and of observable trends.'[6] Not only would ecology understand a problem like the Highlands', it could predict and solve it.

In his belief in ecology's ability to help humanity, Fraser Darling was not alone. Though the average person in Britain had little or no knowledge of what ecology was, ecological thought played an unprecedented role in British politics in the 1940s, and this gave ecologists a powerful self-consciousness.[7] The government frequently sought the advice of ecological scientists, such as A.G. Tansley, Max Nicholson, Julian Huxley, and Fraser Darling, on issues of post-war reconstruction, rural land use, and nature preservation. This reflected the government's endorsement of ecologists' expertise and a willingness to use their advice in the shaping of policy. The attention accorded to ecology and individual scientists, therefore, inflated the prestige and value of the science. In addition, it suggested that ecology had been accepted as an objective and useful science that transcended politics.

For Fraser Darling, ecology was particularly special because he considered it holistic. It was therefore able to analyze scientifically a large and complex problem like the Highlands' as a whole:

> the argument was maintained that if the problem were understood in its wholeness, solution would be possible. It is probable that the correct solution of the problem is one of fairly sharp precision of action and co-ordination over a wide field of human endeavour and natural circumstances. Without the intellectual instrument of wide

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[4] See for example James Ritchie, *The Influence of Man on Animal Life in Scotland* (Cambridge, 1920).
[5] T.C. Smout, *The Highlands and the Roots of Green Consciousness, 1750-1990* (Perth, 1991), 15-16.
[6] Fraser Darling, 'The Ecological Approach', 249.
[7] See John Sheail, *Nature in Trust* (Glasgow, 1976); Sheail, 'Nature Protection, Ecologists, and the Farming Context', *Journal of Rural Studies*, 11 (1995), 81-82.

> and well-digested knowledge of what is, it is almost certain that the degree of precision needed would not be reached.[8]

To emphasize the Survey's human subject, he subtitled its report 'an essay in human ecology'. This stressed his belief that human beings were merely another species that shared the Highland environment and could therefore be studied by way of ecology. Consequently, in his broad extension of ecology, the social sciences, including economics, sociology, and history, were all subsidiaries of ecology.

Fraser Darling's devotion to the principles of Clementsian ecology allowed him to believe in this remarkable ability of ecology to understand and explain a broad regional problem like the Highlands. Even though Frederick Clements's ecological theory was based upon plant 'communities' and upon the distinct flora of the American Great Plains, it could be adapted to animals and humans, as well.[9] Clements gave ecology two major themes that would dominate British and American ecology until the Second World War: first was his theory of dynamic succession in plant communities; and second was his organismal model of community.[10] In Clements's view, a 'unit of vegetation...is an organic entity', which grew, matured, and died like the individual organisms which made up the greater unit of vegetation.[11] The 'life' of a community constantly sought stability, or equilibrium, within itself and the wider environment through successive and quantifiable stages of development towards the ultimate 'climax'. With its organism metaphor, Clementsian ecology provided an easily accessible and understood pattern of life on a grand scale.

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[8] Fraser Darling, preface, vii; see also Fraser Darling, 'The History of the Social Question', *Glasgow Herald* (11 July 1945).

[9] See Robert P. McIntosh, *The Background of Ecology* (Cambridge, 1985), 301-305.

[10] There is disagreement on what extent Clements's ecological theory influenced the development of British ecology. According to Donald Worster, A.G. Tansley admitted Clements's work had tremendous impact upon British ecology (*Nature's Economy*, 206); however, Thomas Dunlap argues that British ecologists were not influenced because Clementsian ecology was suited only to U.S. ecological studies and had little to offer for the understanding of the British landscape (*Nature and the English Diaspora*, 148). However, there is little doubt that Clements had impact upon British ecological theory. Nevertheless, because it was not as suited to Britain, its limitations were more readily discernable, leading to Tansley's rejection of it in 1935 when he proposed his ecosystem theory. Fraser Darling's own introduction to Clementsian ecology was through the work of E.S. Russell: Fraser Darling, *A Herd of Red Deer* (New York, 1967ed), 208-209.

[11] Quoted in Donald Worster, *Nature's Economy* (Cambridge, 1994ed), 211.

The organism analogy suggested that within a community everything was interconnected and dependent upon each other, which was in itself a powerful philosophical idea. Holism and the idea of 'community' allowed some ecologists like Aldo Leopold and Fraser Darling to merge ecology and ethics.[12] As the philosopher J. Baird Callicott explains, 'ecological theory provides the synchronic link—the community concept—a sense of social integration of human and nonhuman nature. Human beings, plants, animals, soils, and waters are "all interlocked in one humming community of cooperations and competitions, one biota"'.[13] Holmes Rolston III further argues that the organismal metaphor allowed believers to argue for ethical treatment of nature because the idea of an organism gave nature a greater ethical identity than it had otherwise.[14] Equally important was the idea of equilibrium. David Lowenthal argues that Clementsian ecology idealized equilibrium, 'enthroning stability' to the point that 'Ecological Utopia became the supreme moral order'.[15] Equilibrium was equated to health within an organism. Fraser Darling claimed that 'the organismal view in biology has lighted the path along which I have found myself groping'.[16] For him the basic tenets of Clements's organismal ecology became the base of his own philosophy for all aspects of life, including human society.

Though other ecological models existed, Clementsian ecology dominated the discipline until the Second World War. In *The Naturalist in Britain*, David E. Allen explains ecology's lure by making an important contrast between this ecology and Darwin's theory of evolution:

> ...it conferred a view-in-the-round that had long been felt to be needed. That other great integrating clutch of principles, the theory of evolution, had proved insufficient on its own for comprehending the natural world. It involved too much still that seemed incapable of proof; it operated too elusively; it was too slow-moving to be readily demonstrable. Ecology, by contrast, was instantly accessible, and it more patently linked in an overall logical framework what had previously

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[12] McIntosh, *Background*, 252-253, 306.
[13] J. Baird Callicott, 'The Conceptual Foundations of the Land Ethic', in J.B. Callicott, ed, *Companion to 'A Sand County Almanac'* (Wisconsin, 1987), 195.
[14] Holmes Rolston III, 'Duties to Ecosystems', in Callicot, ed, *Companion*, 246-274.
[15] David Lowenthal, 'Environment as Heritage', in K. Flint and H. Murphy, eds, *Culture, Landscape, and the Environment* (Oxford, 2000), 204.
[16] Fraser Darling, *A Herd of Red Deer* (Garden City, NY, 1964ed), 208; see also Fraser Darling and Boyd, *The Highlands and Islands* (London, 1964), 295.

> been atomized and disjointed. Unlike Evolution, it also stressed mutual interrelationship. To this extent it served, if dimly, as the intellectual sanction for a more constructive ethic.[17]

Clementsian ecology was holistic, optimistic, and ethical unlike other more reductionist, mechanistic, and competitive models. Its organismal roots pre-dated Darwin to at least Classical Greece and Rome.[18] With its emphasis on holism, cooperation, and reverence for nature, it was also clearly an intellectual descendent of nineteenth-century Romantic philosophy and natural history.[19]

At the same time, however, it was essentially modern, and this gave ecology political power, which Fraser Darling so dearly hoped to tap. Ecology descended from nineteenth-century traditions, but as Thomas Dunlap stresses, it 'is clearly a stage beyond'.[20] Ecology developed within the university system and based itself upon complex mathematical and theoretical models that required specialist knowledge, unlike the earlier amateur tradition of natural history.[21] Nevertheless, ecology in the early twentieth century had an appeal to sentiment and an interest in gaining a broader understanding of nature that was similar to its nineteenth-century predecessors. Charles Elton called it 'scientific natural history'.[22] In a period when the sciences were growing increasingly professional, technical, and concerned with minutiae, organismal ecology promised to explain the natural world in a neat fashion by stepping back and viewing the entire breadth of life. It was utterly positivist and elevated the ecologist to a high status for his or her ability to understand all things natural. If it could explain by quantifiable means the complexities of plant and animal communities, there seemed no reason why it could not explain those of human communities as well.

Though Fraser Darling subtitled the Survey's report 'an essay in human ecology', he never defined 'human ecology'. A year after the Survey, he was still could not define it and

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[17] David E. Allen, *The Naturalist in Britain* (Princeton, 1994ed), 219.
[18] Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (New York, 1980), 99-126.
[19] Allen, *Naturalist in Britain*, 180-181, 218; Worster, *Economy of Nature*, 58.
[20] Thomas R. Dunlap, *Nature and the English Diaspora* (Cambridge, 1999), 139.
[21] Ibid, 140-142, 162-163.
[22] Charles Elton, *Animal Ecology* (Chicago, 2001ed), 1.

said that 'perhaps in these early days of human ecology it would be better not to set it up as a science, but rather to say that human problems may be nearer solution if we tackle them ecologically'.[23] The title 'human ecology' suggested Fraser Darling handled this project in the same manner as he had his earlier projects in the ecologies of specific animals. In animal ecology he was concerned with the interconnection of the social and biological. In his human ecology he attempted the same. The Highlands were an ideal case study because it was a relatively contained area for observation due to geography; it possessed a distinct human culture; and it had an oppressive social and economic problem, the origins of which appeared easily understood through ecology.

In early twentieth-century Britain and America, ecologists eagerly discussed human ecology and included it within their science, but they rarely carried it beyond theory and talk.[24] Many leading ecologists attended to it theoretically, but none seriously attempted to apply it practically in a real case study before Fraser Darling.[25] It was appealing to view human society like an animal community. As Eugene Cittadino argues, 'ecologists had identified natural communities of plants and animals associated with particular environments as products of struggle and adjustment over time; human communities could be accounted for in a similar fashion'.[26]

By the 1930s, however, human ecology was on the wane within professional ecology because its ambiguity threatened the objectivity of the developing discipline. Cittadino cites an 'increasing skepticism and resisted efforts' among ecologists 'to find a place for it within the boundaries of their science, whose theoretical and methodological framework was itself not very well developed'.[27] Human ecology in practice was highly contentious. As the rhetoric of human ecology showed, bias and prejudice were particularly difficult to contain

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[23] Fraser Darling, 'The Ecological Approach', 245.
[24] See Eugene Cittadino, 'The Failed Promise of Human Ecology', in Michael Shortland, ed, *Science and Nature* (Oxford, 1994), 251-183; Barrington Moore, 'The Scope of Ecology', *Ecology*, 1 (1920), 3-5.
[25] McIntosh, *Background*, 304. However, Peder Anker argues that human ecology was a significant part of the ecological discipline in Britain's colonies, especially South Africa: Peder Anker, *Imperial Ecology, 1895-1945* (Cambridge, MA, 2001), 196-236.
[26] Cittadino, 'Failed Promise', 264.
[27] Ibid, 254.

in the pursuit of an objective, scientific understanding of human societies. In some instances it had serious racial undertones and was a proponent of environmental determinism.[28] Ecologists increasingly focused on plants and animals, leaving human ecology to social scientists. Fraser Darling, however, was undaunted by the difficulties presented by human ecology, though he eventually fell into a trap of bias and environmental determinism himself. He could not resist the lure of viewing human society in ecological terms.

Another ecologist who experimented with linking human sociality and the principles of ecology was the Chicago ecologist W.C. Allee, but it was his studies in animal aggregation that influenced Fraser Darling's human ecology. In an effort to extend animal ecology beyond the study of the individual, Allee saw an essential importance in the examination of the dynamics of community aggregation within a species. His research led him to assert the basic necessity for cooperation within populations. Allee's theory undermined the Darwinian emphasis on competition, and taken within the organismal theory of ecology, it gave a particular 'biosociological' approach to ecology, which appealed to Fraser Darling.[29] Further strengthened by the socio-biological theory of J. Arthur Thomson and Patrick Geddes, Fraser Darling was thoroughly convinced by Allee's theory.[30] In his opinion, it adroitly linked the biological to the social; in *A Naturalist on Rona* (1939), he wrote, 'this is a clear and beautiful concept: let us keep it in mind as we see something of the lives of higher animals which are social'.[31] Cooperation as an essential evolutionary principle in the development of animal social behaviour became a cornerstone of Fraser Darling's animal ecology, and he adapted it to his human ecology with ease.[32]

Fraser Darling had no real qualifications for studying human ecology, but he had reason to believe he had. Like many in the new field of ecology, he came to it from other disciplines—agriculture and animal genetics. He probably had no formal training in

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[28] Ibid, 254-259; Anker, 196-236.
[29] Gregg Mitman, *The State of Nature: Ecology, Community, and American Social Thought, 1900-1950* (Chicago, 1992), 143. An earlier emphasis on cooperation as an alternative mechanism of evolution to competition came from Peter Kropotkin: see Peter J. Bowler, *The Eclipse of Darwinism* (Baltimore, 1983), 55-56.
[30] Fraser Darling, *A Herd of Red Deer*, 73-74.
[31] Fraser Darling, *A Naturalist on Rona* (Oxford, 1939), 60.
[32] Fraser Darling, 'Social Behavior and Survival', *The Auk*, 69 (1952), 190.

ecology, and due to a dislike for the subjects, his background in maths and physics was limited.[33] He was first introduced to ecology when he read Charles Elton's *Animal Ecology* (1927).[34] In the 1970s, Fraser Darling recounted Elton's influence: 'here was the working of natural history explained in a way I had never reached but had groped towards in earlier years.'[35] Fraser Darling abandoned a traditional academic life and devoted himself to field research. A Leverhulme Fellowship took him to the Highlands in Dundonnell, Wester Ross to study red deer in 1933. Animal ecology was just coming into its own, and he was among the avant-garde; a co-recipient for the fellowship was none other than Charles Elton. Fraser Darling's project and book, *A Herd of Red Deer* (1937), were a brilliant success, and in 1934 he was elected Fellow of the Royal Society of Edinburgh. After red deer, he studied the social behaviour of seabirds on the uninhabited island of Eilean a' Chleirich in the Summer Isles. However, *Bird Flocks and the Breeding Cycle* (1938) and his scientific contribution, the Darling Effect, were not particularly successful.[36] From a scientific view his next project, studying grey seals in the Treshnish Isles off Mull and then on North Rona, was even more disappointing.[37]

Partly due to isolation from his academic peers, Fraser Darling's confidence nevertheless grew with each project, exemplified by the increasing complexity and difficulty of each scheme he pursued. He studied at one end of ecology with Allee and Elton, focusing on animal communities, 'syncology', rather than individuals. Significantly, community ecology studied 'the larger natural associations of species both in space (biogeography) and in time (succession)'.[38] His red deer study focused upon a community of terrestrial mammals, whose habitat was entirely contained within a forest in Wester Ross. In

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[33] See Fraser Darling, 'The Way I have Come', *Countryman*, (3 parts; 1972), i. 36, J. Morton Boyd, Frank Fraser Darling Papers, StAUL MS 38449/34.
[34] Anne Chisholm, *Philosophers of the Earth* (London, 1972), 45.
[35] See Fraser Darling, 'The Way I have Come', i. 37.
[36] Though never disproven, the 'Darling Effect' has never been completely accepted: Michael Gochfeld, 'Mechanisms and Adaptive Value of Reproductive Sychrony in Colonial Seabirds', in Burger, Olla, and Winn, eds, *Behavior of Marine Mammals Current Perspectives in Research*, vol. 4: *Marine Birds* (New York, 1980), 207-270; John P. Ryder, 'The Influence of Age on the Breeding Biology of Colonial Nesting Seabirds', in ibid, 153-155.
[37] Boyd, *Fraser Darling's Islands*, 105.
[38] Sharon E. Kingsland, *Modelling Nature: Episodes in the History of Population Ecology* (Chicago, 1995ed), 50.

comparison, the study of the breeding cycles of seabirds was far more difficult because their habitats were immense and not confined to any one area accessible by a single researcher. Seals were even more complicated. Very little was known about the lives of seals, especially in the open sea where contemporary research techniques were limited.[39] Furthermore, Fraser Darling's own living conditions grew evermore difficult and remote with each project. He relished the adventure, the open air, and the sheer novelty of his position within ecology.

In his practice of ecology, however, Fraser Darling avoided experimentation and complex mathematical modelling, preferring observation and description. He was uninterested in laboratory work and cited the work of Konrad Lorenz as inspiration.[40] His work was largely descriptive because he depended more upon observation and intuition than mathematical modelling and deduction. In the 1930s the strength of his ecology lay in his observational techniques in the field. They were as important, if not more important, than his data and conclusions. Fraser Darling's technique was total immersion, and he often worked alone and in all seasons and weather. In the summer of 1935 he stalked red deer barefoot and 'the whole threshold of awareness was raised'.[41] Studying seabirds on Eilean a' Chleirich and seals on North Rona involved long uncomfortable hours of watching the animal subjects in all weather without cover on windy, treeless islands. His techniques for studying the Gaelic people were not so very different. From 1939 through 1943, Fraser Darling farmed a 'croft' on Tanera Mor in Loch Broom, and from 1944 to 1948, he conducted the Survey from Kilcamb Lodge, Sunart, a Highland estate owned by the Department of Agriculture for Scotland in Strontian, Inverness-shire and centrally located in the crofting counties.

Fraser Darling's vision for human ecology developed in the late 1930s and early 1940s concurrent to his research in animal ecology in the Scottish Highlands and Islands.[42] During his research, he depended upon the local Highland communities, and he was often

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[39] Boyd, *Fraser Darling's Islands,* 101-110.
[40] Ibid, 48.
[41] Fraser Darling, *A Herd of Red Deer* (London, 1941ed), 27.
[42] Chisholm, *Philosophers,* 47.

in contact with the crofters, whose lives and experiences differed his. The self-conscious understanding that the Gaelic community was fundamentally different from his own was essential to his study because it allowed for a pretence of objectivity and gave him access to comparison. His own difficulties of living in the West Highlands and Islands, which he detailed in *Island Years* (1940) and *Island Farm* (1944), gave Fraser Darling great respect for the crofters. Over the years, he grew enchanted with the crofters, their culture, and the land they lived upon for its very difference to the rest of Britain. He devoted much discussion to these subjects in his popular books, *A Naturalist on Rona* (1939), *Island Years*, and *Island Farm*.

The idea of studying human ecology in a more serious and scientific manner came about due to the circumstances of war. When the Second World War interrupted his seal study on North Rona at the end of 1938, Fraser Darling and his wife, Bobbie, returned to Tigh an Quay, the derelict 'croft' on Tanera Mor they had just bought. Though the war had given him little choice of any other occupation, Fraser Darling made the best of the situation by conducting a massive experiment in agriculture. He attempted to make Tigh an Quay a sustainable farm despite the island's weather, isolation, and poor soil. He publicized this work by writing articles because his writing remained his family's primary source of income and he felt the experiment had social merit. His successes on Tanera gave him the idea of helping the entire community of crofters who farmed land similar to his own. It rapidly developed into his next great research project, the West Highland Survey.

Fraser Darling claimed firsthand experience of the daily life of the crofters from his time in the Highlands and his life at Tigh an Quay. Starting out on this new project, he wrote in *Island Farm*, 'we believed that if our work was to have any value beyond our tiny world, it was necessary to live the constricted life of labour which is the peasant's lot, just as when we studied the behaviour of the red deer and the Atlantic seals we lived as near their life as we could.'[43] Of course, Fraser Darling's life on Tigh an Quay was far from that of an average crofter's. The Fraser Darlings were not seeking the same sort of profit that a true crofter would. They did not depend upon the sale of the products of their manual labour;

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[43] Fraser Darling, *Island Farm*, 5.

rather, they depended upon Fraser Darling's writing about it. In addition, they had more capital with which to purchase stock, seed, and equipment. In this experiment Fraser Darling studied both traditional and modern agricultural techniques available to the crofter, but at 175, his recommended 'Trusty' hand tractor was hardly within a crofter's budget.[44]

Fraser Darling's enthusiasm for his self-appointed work in Highland agriculture earned him accolade in the press and drew Tom Johnston's interest. To Johnston, Fraser Darling was a selfless and optimistic crusader for the crofters and a great promoter for revitalizing the Highland economy through agriculture. Fraser Darling's biographer, J. Morton Boyd, states it most dramatically:

> Johnston saw in Frank [Fraser Darling] a new evangelism in the use of natural resources at a time when a messianic figure was badly needed in the Highlands and Islands. The island life had an attractive inspirational base and the wholesomeness of Frank's writing on crofting agriculture had an appeal to society which elsewhere was ploughing and digging for victory for all its worth.[45]

Fraser Darling's autobiographical books and newspaper articles, especially in the *Glasgow Herald*, made him a popular figure in the late 1930s and early 1940s. To the public, his research and life were fascinating. People were enthralled with his life; it was romantic and escapist to the urban, middle-class reader, especially during the war years. His books, especially *Island Years* and *Island Farm*, were very popular and sold by the thousands despite wartime paper rationing.[46]

Fraser Darling made clear in *West Highland Survey* that ecology took precedence over all other subjects; the holism of Clementsian ecology allowed him to believe it was the mega-discipline which encompassed all others. In the first chapter, 'a historical résumé', he attempted to write a more complete history of the region. Significantly, he refused to separate human history from natural history when he stated that 'an assessment of the state of the Survey region cannot disregard history, which is in fact natural history, where man is one of the animal species behaving positively or negatively, bringing about consequences on

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[44] See ibid, 178; Fraser Darling to J.L. Campbell, 17 January 1942, StAUL MS 38449/32.
[45] Boyd, *Fraser Darling's Islands*, 190.
[46] Fraser Darling claimed *Island Year*'s initial printing of 7,000 copies was quickly exhausted in Fraser Darling to K. Sisam, 19 February 1940, Naturalist on Rona, OUP 803648; unfortunately, the publisher of *Island Years* and *Island Farm*, George Bell and Sons, Ltd, no longer exists. Bell's papers can be found at the Reading University Library MS 1640.

the land he did not imagine at the time and tends not to recognize now'.[47] He used an analogy of a three-horse chariot to describe history. The three horses were political, social, and natural history; collectively, they pulled the chariot of 'history'. Together, Fraser Darling considered them 'coeval and to some extent interdependent'.[48] He intimated that natural history was often overlooked, and to the detriment of understanding Highland history and the Highland problem: 'the political and social histories have both received some measure of attention in the past, but the extremely practical and significant natural history of the Highlands has not been written, nor scarcely considered in relation to its fellow steeds and the state of the chariot which is governed by the movements of these three.'[49]

In thinking about history, Fraser Darling was influenced by Arnold J. Toynbee, whose *A Study of History*, the first six volumes of which were published by 1939, he began reading during his years on Tanera. In March 1941, he confided his high regard for Toynbee's work to his Oxford publisher: 'I am a great admirer of Toynbee & his *Study of History*, & can apply his thesis satisfactorily to island culture.'[50] It is easy to see why Fraser Darling liked Toynbee; the historian's view of human history was all embracing and holistic, and he sought to understand what constituted 'civilization'. In this manner, Fraser Darling could see a similarity between Toynbee's and his own work in the West Highlands and Islands. Most important, however, was Toynbee's recognition of an environmental stimulus upon the growth of human societies.[51] Fraser Darling approved full-heartedly of this and saw ecological principles behind it: 'I accept Toynbee's concept of challenge & response in civilizations—it is good ecology.'[52] Furthermore, Toynbee's status within Britain's

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[47] Fraser Darling, 'Summary', in Fraser Darling, ed, *West Highland Survey*, 409.
[48] Fraser Darling, 'The Ecology of Land Use', in Fraser Darling, ed, *West Highland Survey*, 153.
[49] Ibid; see also Fraser Darling, 'Ecology of Land Use in the Highlands and Islands', in D.S. Thompson and I. Gimble, eds,*The Future of the Highlands* (London, 1968), 30.
[50] Fraser Darling to Sisam, 31 March 1941, OUP 803648.
[51] See Arnold J. Toynbee, *A Study of History*, abridged by D.C. Somervell (London, 1949), 55-60, 67-79.
[52] Fraser Darling to Sisam, 31 March 1941, OUP 803648.

intellectual aristocracy gave Fraser Darling confidence in his own ideas and helped confirm the direction of his own history of the Highlands.

Fraser Darling promised a more complete history by incorporating the neglected aspect of natural history into the greater history. Because ecology dealt with historical processes, especially in charting 'succession', as well as those of the present and future, he saw it as synonymous with 'natural history'. By invoking the term 'natural history', he was not referring so much to the nineteenth-century tradition of amateur nature study and classification schemes, but he meant a scientific environmental history: a written history in which a scientific understanding of nature played a critical part. In Fraser Darling's history, the Gaels were a people who had reached a harmony with nature over centuries of adaptation, but an invasion by British culture destroyed this equilibrium in the eighteenth century. He superimposed Clements's model for the development of plant communities directly onto the crofting community. Clements described the dynamic development of the community organism as 'succession', which was the result of a series of invasions: 'In this development, habitat and population act and react upon each other, alternating as cause and effect until a state of equilibrium is reached.'[53] Fraser Darling's Highland history read similarly.

Fraser Darling considered the '45 a watershed in Highland history because it marked the formal capitulation of the Highland environmental community to modern Britain's over-lordship.[54] In ecological terms, this defeat was the result of an 'invasion' of the Highlands and the thorough destruction of a carefully maintained equilibrium between the human, animal, and plant inhabitants of the region. The invader was modern Britain, along with its capitalist economy, its social norms, and industrial agenda. In terms of political history, Fraser Darling described the collapse of the Highlands' traditional government—the clan system—and the impact this had had upon social history by radically disrupting economic, demographic, and communal structures. In these particular histories,

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[53] Frederic Clements, excerpt from *Plant Succession* (1916), printed in Carolyn Merchant, ed, *Major Problems in American Environmental History* (Lexington, MA, 1993), 447.
[54] Fraser Darling, preface, vii.

he did not depart from a traditional analysis. The novelty of his history was its emphasis on the invasion's impact upon the region's ecological structure and its subsequent ecological repercussions, which, in his opinion, created the Highland problem:

> after the Rising of 1745...a new way of life had to be found; when the natural resources of the forests were being depleted for purposes beyond the needs of the people within the area; when sheep-farming on the extensive system replaced the indigenous cattle husbandry; and when the advent of the potato, and the decline in smallpox and biologically expensive internecine warfare, allowed the population to swarm as it had never done before.... The problem has continued to deepen through periods of gross mismanagement, and of increasing differences between the simple social culture and primitive agriculture of the Highlands and Islands on the one hand, and the highly urbanized, commercial civilization of the rest of Great Britain on the other. The Highlands and Islands have had no buffer from the raw effects these great changes of two centuries.[55]

When the British state abolished clan rule and annexed the Highlands in 1754, Fraser Darling argued that the environmental equilibrium, which the Gaels had achieved over the centuries since they had invaded the region themselves, was shattered. The combined introduction of capitalism, industry, and medicine created a 'devastated terrain', the consequence of which was reflected in the economic, social, and demographic deterioration that composed the highly visible Highland problem of the 1940s.[56]

To prove this assertion, a major portion of the *West Highland Survey* was therefore devoted to surveying and describing the ecological devastation wrought by the invasion of the British state. Fraser Darling emphasized what he considered the most critical: deforestation, sheep, and over-population. With the demographer R.S. Barclay, he tackled the issue of population in the third chapter. Reviewers of the published Report were unanimous in their praise of its meticulous study of available demographic data, though the Development Commission's internal reviewer felt the chapter went 'over old ground and does it very badly'.[57] Through parish analysis, Barclay and Fraser Darling outlined the tremendous growth of population in the late eighteenth and early nineteenth centuries

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[55] Ibid, vii-viii.
[56] Ibid, viii; cf. Robert Mathieson, *Survival of the Unfittest: The Highland Clearances and the End of Isolation* (Edinburgh, 2000).
[57] Joseph F. Duncan to E.H.E. Havelock, 21 January 1952, PRO D 4/1707.

followed by the substantial decline since 1841.[58] Their graphs of age distribution over time reinforced the problem of de-population in the twentieth century. Fraser Darling compared the Highlands' human demographic trend to that of gulls', noting that both lost viability, foundered, and perished when populations grew too 'small, scattered, and isolated'.[59] As this striking comparison suggested, he presented the decline in the Highland population as a problem akin to those of animal communities.

This interpretation of the Highlands' demographic problem was different from the more common method of economic analysis, which dominated in the years prior to the Survey. The Scottish Economic Committee had submitted a much-heralded report on the region in 1938 and the young economist Adam Collier's ideas, posthumously published as *The Crofting Problem* (1953), were highly esteemed.[60] In *West Highland Survey*, Fraser Darling superseded economics with ecology.[61] Furthermore, he demonstrated that poor ecological practices introduced from outside had caused de-population. He noted a substantial correlation between de-population and deforestation and the introduction of large-scale sheep farming.[62]

But the crime of sheep and timber was less for turning the crofters off their land than for destroying the soil, which he saw as the basis of Gaelic civilization: their politics, their culture, and their subsistence. Forest cover was an important part of the Highlands' pre-1745 equilibrium. It gave nutrients to the soil for sustainable agriculture and prevented erosion and flooding. Ecologically, 'the destruction of the forests... destroyed the

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[58] See Table 4 in Fraser Darling and Barclay, 83. Their data coincides with accepted figures: Michael Flinn, et al, *Scottish Population History from the 17th Century to the 1930s* (Cambridge, 1977), 304-307.

[59] Fraser Darling and Barclay, 'Population', 126-127; cf. Fraser Darling, *Bird Flocks and Breeding Cycles* (Cambridge, 1938), 75-76.

[60] SEC, *The Highlands and Islands of Scotland: a review of the conditions with recommendations for improvement* ([Edinburgh], 1938); for an analysis of the Committee's report see Ewen A. Cameron, *Land for the People? The British Government and the Scottish Highlands, c. 1880-1925* (East Linton, 1996), 202-203; Adam Collier, *The Crofting Problem* (Cambridge, 1953); Collier was Assistant Secretary to the SEC enquiry; Fraser Darling wanted Collier on the Survey, but Collier died in 1945.

[61] See Fraser Darling, 'Ecology of Land Use in the Highlands and Islands', 30-31.

[62] Fraser Darling, 'The Ecological Approach', 249.

continuum, the circulatory system, and the conserving value of the climax system'.[63] The introduction of southern sheep in the eighteenth century was a further blow to the equilibrium. As selective nibblers, sheep encouraged the practice of burning. Ultimately, Fraser Darling claimed that 'the combination of fire and tooth is invincible'.[64] By comparing soils of sheep farms to cattle pastures and the few remaining bits of old-growth forest, he revealed how sheep and fire destroyed the soil by simplifying the vegetation and promoting erosion.[65] He concluded that soil deterioration had made crofting agriculture no longer sustainable, which had led inevitably to population decline. As proof, he noted that 'the worst area [of de-population] is the province of North-West, where physical deterioration of the environment is also most pronounced'.[66] His conclusion was dire: 'in short, the Highlands are a devastated countryside, and that is the plain primary reason why there are now few people and why there is a constant economic problem.'[67]

Fraser Darling's history of the Highlands' ecological devastation had important implications. In his history, English and Lowland greed was the major instigator of the ecological destruction which created the Highland problem. Though he recognized that the Highlands had lost forest from climate change and a range of human exploitation over the last two millennia, he explicitly blamed the English for its modern destruction. In particular, he highlighted the actions of General Monk in the seventeenth century, the felling by southern iron smelters in the eighteenth, and the replacement of woodland with sheep pasturage in the nineteenth.[68] The idea that the Great Caledonian Forest, a sort of 'lost Eden', was destroyed by modern humanity was not Fraser Darling's own; it was a popular conception of the late Victorian and Edwardian period.[69] Fraser Darling did not question it, but helped perpetuate it through his popular writing. Significantly, in this interpretation,

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[63] Fraser Darling, 'The Ecology of Land Use', 167.
[64] Ibid, 169.
[65] Ibid, 167.
[66] Fraser Darling and Barclay, 'Population', 102.
[67] Fraser Darling, 'The Ecology of Land Use', 192.
[68] Fraser Darling, 'History of the Scottish Forests', *Scottish Geographical Magazine*, 69 (1949), 132-137; Fraser Darling, 'A Brief Historical Résumé', in Fraser Darling, ed, *West Highland Survey*, 4.
[69] Smout, 'Highland Land-Use Before 1800', in T.C. Smout, ed, *Scottish Woodland History* (Dalkeith, 2002ed), 5.

the major role played by outsiders in the destruction of the Highland environment absolved the Highlanders of blame for their problems. In addition, it suggested that it was outsiders' responsibility to right the wrongs of the past.

Despite the continuing power of Fraser Darling's history of the Great Caledonian Wood, paleoecological research and a rereading of the primary sources has led to a serious revision of Highland woodland history in the past twenty-five years.[70] Many now argue that the small farmers of the Highlands had a substantial and debilitating effect upon the forest cover. According to Smout, the combination of the Highland peasants' grazing animals and climate change was probably responsible for most of the region's woodland destruction long before 'there was any question of the intrusion of outsiders, or external market forces'.[71] He also contends that southern iron smelters were more likely to conserve woodland than destroy it.[72] The geographer Robert A. Dodgson further argues that the increasing population in the Highlands from 1500 to 1800 placed an enormous strain on resources and created an ecological and social 'Highland problem' at a much earlier date than 1745.[73] Sheep, too, have recently been partially absolved of their role in the Highlands' ecological devastation.[74] Though Fraser Darling's history has been undermined from many angles, the myth of the Great Caledonian Forest, the lost Highland Eden, and the watershed year of 1745 remain powerful and persistent ideas.

The English were not the only culprits in *West Highland Survey* for the region's ecological destruction. Human agency alone did not explain why the Highlands's environment and culture were so susceptible to the dangers of deforestation and sheep. An essential aspect of Fraser Darling's argument was that the environment played a more

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[70] Ibid, 5-22; David J. Breeze, ' The Great Myth of Caledon', in Smout, ed, *Scottish Woodland History*, 46-50; Smout, *Nature Contested* (Edinburgh, 2000), 37-63.
[71] Smout, 'Highland Land-Use', 7.
[72] Ibid, 16-18; see also J.M. Lindsay, 'Forestry and Agriculture in the Scottish Highlands 1700-1850', *The Agricultural History Review*, 25 (1977), 26-28.
[73] Robert A. Dodgshon, 'The Ecological Basis of Highland Peasant Farming, 1500-1800 AD', in H.H. Birks, et al, eds, *The Cultural Landscape* (Cambridge, 1988), 139-151.
[74] John L. Innes, 'Landuse Changes in the Scottish Highlands during the 19th Century', *Scottish Geographical Magazine*, 99 (1983), 141-149; Alexander Mather, 'The Environmental Impact of Sheep Farming in the Scottish Highlands', in T.C. Smout, ed, *Scotland Since Prehistory* (Aberdeen, 1993), 79-88; Smout, *Nature Contested*, 125-126.

important role in Highland history and society than elsewhere in Britain. Although he did not explicitly state it, he believed the environment had an inordinate impact in the development of Gaelic culture. It accounted for some of the significant differences between Highland culture and the rest of Britain's:

> The region...cover[s] some of the highest, roughest, and poorest ground in Scotland. Geological features and land forms occur which are not found elsewhere in the country. The human history of the region has been much affected by these, and in spite of technical advance and what is thought to be increasing control of nature, the geological and physiological character must continue to influence the life of the people to a much greater extent than where urban and industrial conditions apply, or where edaphic conditions allow a wider choice of activities.[75]

Despite modern advances in technology and the control of nature, the Highland environment remained a significant determining factor in regional culture. Fraser Darling supported this theory of environmental determinism by focusing on the natural poverty, as opposed to that caused by sheep and deforestation, of the region's soils and natural resources. He argued that either the hardness or the absence of essential minerals in the Highlands' most common geological formations had limited profitable agriculture and industry in the region throughout its history.[76]

In the chapter on geography, Fraser Darling developed this theme of environmental determinism further. He argued that poor soils and a dearth of exploitable minerals and coal required Highlanders to pursue pastoralist and cooperative lives. The persistence of the resulting 'simple social culture and primitive agriculture', while the rest of Britain 'advanced', was enhanced and augmented by the isolation of the Highlands from the rest of Britain and the world.[77] The harsh landforms of peaks, glens, and lochs shaped by glaciation, combined with a climate of excessive rain and wind, effectively limited the Highlanders' contact with the rest of the world. Insulated by geography, an older social order of clans persisted in the Highlands far longer than elsewhere in Britain.[78] When that isolation was breached in the eighteenth century, it made the integration of the Highlands

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[75] Fraser Darling, 'Relief, Land Forms, Vegetation and Communications', in Fraser Darling, ed, *West Highland Survey*, 15.
[76] Fraser Darling, 'The Ecology of Land Use', 154-156.
[77] Fraser Darling, preface, viii.
[78] Fraser Darling, 'Résumé', 1-13; Fraser Darling, 'Summary', 407.

into the greater British society and economy all the more traumatic and devastating—ecologically, economically, and socially.

Just as his blame of the English for the destruction of the Great Caledonian Forest absolved the crofters of the region's deforestation, the emphasis on environmental determinism in Highland history released them from culpability on another part of the Highland problem. In terms of agricultural and industrial development, *West Highland Survey* suggested they had a natural disadvantage by the circumstances of climate, geology, and geography. For survival, the Highland environment encouraged the Gaels to make more concessions to the natural world than those made by the rest of Britain.

For Fraser Darling the most critical of these concessions were methods in land use and land ownership. He believed that the traditional economy of the Highlands, the black cattle trade and subsistence agriculture, had used the land in a sustainable manner.[79] Traditional breeds of Highland cattle and sheep, which had adapted to the Highlands' harsh environment over centuries, were more suited to the region than their southern counterparts that replaced them in the eighteenth century. Cattle had less impact upon the ecology than sheep, especially when cared for in the traditional, pastoralist manner of seasonal hill pasturage, or sheiling.[80] Communal land holding under the political structure of the clan system further assured soil quality. The community-regulated practice of souming, runrig, and communal grazing ensured fair land use within the population while also promoting vegetative diversity.[81]

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[79] However, the cattle-droving trade was probably not traditional because it was established in the seventeenth century for cash-producing purposes: Dodgshon, *From Chiefs to Landlords: Social and Economic Change in the Western Highlands and Islands, c.1493-1820* (Edinburgh, 1998), 159-202, 235-236.

[80] Fraser Darling, 'The Ecology of Land Use', 167; for more information see Albert Bil, *The Sheiling, 1600-1840: The Case of the Central Scottish Highlands* (Edinburgh, 1990).

[81] *Souming* is a 'tally of stock', a system by which an agricultural community regulates the number and types of stock animals on a particular piece of land. 'A soum is the pasturage needed for a cow', a specific amount of land that varies by the quality of the land. By equating a cow against other stock, an elaborate system of stock regulation emerged, and this in turn ensured future use of the pastures: Fraser Darling, Hayes, and Morley, 'The Agricultural Situation', in Fraser Darling, ed, *West Highland Survey*, 206. *Runrig* is a communal system of land use in which the community shares pastures and allots long strips of arable land to individuals. For more information see Ian and Kathleen Whyte, *The Changing Scottish Landscape, 1500-1800* (London, 1991), 59-61; Malcolm Gray, 'The Abolition

In theory, it appears that Highlanders' historical grazing patterns and land holding patterns were examples of good sustainable land use. However, just as experts have questioned the history of the Great Caledonian Forest, there has also been valid questioning of how eco-friendly peasant land-use was. Dodgshon demonstrates that one such 'sustainable' land use pattern found on the east coast of the Hebrides, feannagan, or lazybed cultivation, was actually an unhappy, labour-intensive technique developed between 1500-1800 to farm marginal land in the face of mounting pressure from over-population.[82] Smout argues that over-grazing was a problem in the Highlands long before the advent of southern sheep, which suggests that the region's traditional grazing checks might not have been as successful as they sounded.[83] He also points out that 'the least known factor of all about the environment in the seventeenth and eighteenth centuries is the state of the herbage' and, therefore, distrusts the scientific basis of Fraser Darling's conviction 'that the arrival of commercial modern sheep farming on a large scale...had a very deleterious effect on the land they grazed'.[84] It now appears that what looked like sustainable land use in theory could have been the opposite in reality.[85]

Fraser Darling saw the eighteenth-century invasion of the Highlands as more than an ecological invasion: it was a cultural invasion. However, he did not draw a line between the two because in his human ecology, the two were inextricably linked. The biological and social could not be separated in his view of both history and ecology. He had established this link in his studies in red deer, gulls, and seals by showing the importance of the relationship between environment, population, and social behaviour. In the *West Highland Survey* he also showed how the Highlanders' political structures were constructed upon their close relationship with the land.

Because the Highland geography forced the Gaels into a close relationship with their land, Fraser Darling argued that their political, economic, and social structures were

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of Runrig in the Highlands of Scotland', *The Economic History Review*, 2nd series, 5 (1952), 46-57.

[82] Dodgshon, 'Ecological Basis', 148-149;

[83] Smout, 'Highland Land-Use', 18.

[84] Ibid, 20.

[85] See Dodgshon, *From Chiefs to Landlords*, 244-245.

similarly based upon this relationship. Because of the poor nature of the land, he argued that community viability depended upon cooperation: 'the system was one of essential co-operation by people living near the fringe of possible human existence. Man is essentially a social animal, and where life has to be lived and subsistence mainly gained from land round the dwelling, sociality becomes a necessity'.[86] He went on to describe how this cooperative life created an egalitarian society:

> land was held in common and apportioned by ballot, work was done in common, and management of the township's affairs could scarcely be other than a commonly shouldered responsibility. The responsibility was freely delegated in some measure by the election of a constable, a man with powers of leadership and integrity. The individuals and work teams of a township could accept the executive decisions of the man they had elected freely.[87]

Because survival in a harsh environment had to be the Gaelic community's primary concern, Fraser Darling, maintained that cooperation was essential, and that this was reflected in their society.

Politically, Fraser Darling attributed the historical clan system to the same environmental criteria. In defining this political system, he examined the concept of land ownership: the fact that 'the land upon which the clan lived was not the *property* of the chief; it belonged to the tribe and the chief was maintained by its members and given implicit obedience as the defender of the territory of the people and head of the race'.[88] Such a political system, 'however patriarchal and absolute, was at bottom egalitarian' because it was a 'balanced reciprocal situation', which dissuaded 'despotism'.[89] He noted that 'the Hebridean townships form the nearest approach to a classless society of any communities in this country'.[90] Highland geography was crucial in creating this egalitarian society because 'the clan system was tied up with conditions of terrain and subsistence and could not diverge far from these fundamentals' without jeopardizing survival.[91]

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[86] Fraser Darling and Morley, 'The Social Situation', in Fraser Darling, ed, *West Highland Survey*, 282.
[87] Ibid, 283.
[88] Fraser Darling, 'Historical Résumé', 1.
[89] Ibid, 2.
[90] Fraser Darling and Morley, 'Social Situation', 284.
[91] Ibid.

Fraser Darling used ecology to romanticize the clan system and to build upon the image of an ecological utopia in the historical Highlands, which his woodland history had helped instil into the popular imagination. Just as he decried the cultural 'invasion' from the south, he lamented the dissolution of the Highland clans in the eighteenth century, which effectively destroyed this political system that had developed concurrent with the environmental conditions over the centuries. The Gaelic relationship with the land was destroyed by the alien concept of private property, which gave the land to the chiefs. By the standards of the newly introduced capitalist system, profits from the region's land and sea were unable to sustain a viable Highland economy because of the poor natural resources. Fraser Darling concluded that though 'the abolition of hereditary jurisdictions [made] the common folk...technically free men', in reality they had become slaves in a new social order they did not understand.[92]

Fraser Darling also argued that social cooperation had psychological benefits for the Gaelic community. He believed the loss of cooperative sociality and agricultural practices had a serious negative impact upon the community's self-esteem. In farming, he noted that 'digging by one's self is drudgery, but shared with three others with only elbowroom between them, it can be a joy. A physical and psychological rhythm is established in a work team which gives a feeling of well-being, and the output of gainful work is greater than that of a four men working alone.'[93] He deplored the advent of the tractor: 'its noise denies the sweetness of human intercourse, it goes too fast for togetherness, and lifts the driver to Olympian aloofness.'[94] He noted similar psychological benefits from cooperation in fishing. This cooperation between men, Fraser Darling declared was 'elementary', but he lamented its rarity because of 'the impingement of another culture' that was so complex and individualistic, it overlooked the basic necessity of cooperation.[95] He saw modern British society as the greatest opposition to Gaelic society and its native cooperative ethic. With its capitalist economy, modern society was firmly based on competition, the antithesis of

[92] Fraser Darling, 'Historical Résumé', 3.
[93] Fraser Darling and Morley, 'Social Situation', 282.
[94] Ibid, 283.
[95] Ibid.

cooperation. He used the comparison not only to illustrate the Highland problem but as a base for a moral critique of modern society.

Fraser Darling's emphasis on environmentally-induced cooperation in the traditional Gaelic community referred directly to Allee's theory of animal aggregation. Allee's theory underlay all of Fraser Darling's socio-biological work in animal ecology, and it laid the basic theoretical framework for his conception of the Highland culture as well. Clements's ecology and Allee's theory of the social evolution of animal communities were very compatible, and both allowed for broader application than their original plant and animal subjects. This gave ecologists an important self-imposed role in society, for they were scientists who understood the biological processes of group social behaviour. At Chicago in the 1930s and 40s, ecologists sought to 'biologize human sociality'.[96] They were, in a sense, scientific social healers.

A veiled theme throughout *West Highland Survey* was the difference between modern and Gaelic cultures. Occasionally, however, the comparison was blatant. In one such instance Fraser Darling envisioned a mighty metaphorical battle that was deeply imbued in ecology. In this battle, there was clearly a 'good' and a 'bad' side. On one side was the innocent plant of the Highlands, and in opposition was modern Britain, a nasty parasite bent on sucking the life from the plant. First, the Gaelic community:

> The Gaels are a people with deep roots which still hold fast to an earlier time, though the vine may climb by the support of other cultures which it will cover and mask. But the plant and flower of Gaeldom as a culture is flowering no more and the plant is sick, though scions from the old stock grafted into a fresh environment bloom anew.[97]

This was a clear reference to Clements's vision of a community as a super-organism. The Highlanders' history and culture could be understood by envisioning the life of a pretty plant. In contrast, modern Britain was an ugly parasite: 'man in numbers, combative and political man, who has no place in nature, has entered this complex organism like a

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[96] Mitman, *State of Nature*, 7.
[97] Fraser Darling and Morley, 'Social Situation', 281.

protozoan parasite in its blood-stream and has brought the organism to a state of debilitation.'[98]

Fraser Darling had decidedly romantic notions about Highlanders. He envied their close relationship to the land at a time when the rest of Britain was heavily urbanized and rural areas were growing increasingly dominated by large, mechanized farms.[99] He abhorred capitalism's effects upon the countryside, and the history of the Highlands appeared to contradict the promise of capitalist agriculture. He was adamant in his dislike of agricultural 'pundits' who believed agriculture was best practised in an industrial style.[100] Instead, he revelled in the notion of the honest subsistence farmer, to whom he accorded grand anti-materialist values. He did not worry about economic considerations when he wrote the introduction to *Crofting Agriculture* (1945):

> What we are seeking in the West Highlands and Islands are not necessarily big cash profits, but the good life, a satisfaction and content of being in the land we love. The good life means a cultural content of the mind as well, and I hold that physical surroundings of greenness, and healthy, thriving crops and animals are a necessity, it that content is to grow and be maintained in a rural community. Our heads may be above the clouds, but our feet are still on mother earth. The earth has to be tended with toil, love, and wisdom if she is to give us our content.[101]

He assumed Highlanders were not interested in profit because he firmly believed in an image of them as noble, selfless, ecologically-sound people. He considered their lives more basic and therefore better than the rest of Britain's. Such a theory was both radical and extremely traditional. It was based upon a simpler, earlier political, social, and environmental relationships, but called for a social and ethical revolution. As such, his theories were reminiscent of William Morris's at the end of the previous century.[102]

In making the crofter an ideal and hero for their traditional sustainable methods for life, Fraser Darling had many predecessors, which also undermined the novelty of his

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[98] Fraser Darling, 'The Ecology of Land Use', 193.
[99] See I.G. Simmons, *An Environmental History of Great Britain* (Edinburgh, 2001), 202-209; R.J. Lloyd and G.P. Wibberly, 'Agricultural Change', in J. Davidson and R.J. Lloyd, eds, *Conservation and Agriculture* (Chichester, 1977), 3-22
[100] Fraser Darling to Campbell, 17 January 1942, StAUL MS38449/32.
[101] Fraser Darling, *Crofting Agriculture* (Edinburgh, 1945), 4-5.
[102] See Paddy O'Sullivan, 'The Ending of the Journey: William Morris, *News from Nowhere* and Ecology', in Stephen Coleman and Paddy O'Sullivan, eds, *William Morris and 'News from Nowhere': A Vision for Our Time* (Bideford, Devon, 1990), 169-181.

philosophy. Since at least the eighteenth century, there has existed a tradition of lauding the countryside as a harbour for sound values, simplicity, and honesty. In the late eighteenth and nineteenth centuries, as Britain grew increasingly industrial, urban, and polluted, the idea of an idyllic, unspoiled country grew stronger, culminating in the Romantic movement. Henrika Kuklick notes that 'as the British became an increasingly urbanized people, they could the more easily impute the values they cherished to rural life because they had not experienced it themselves'.[103] The Highlands in particular were often romanticized in the national conscious, especially in the nineteenth century when they symbolized an unspoilt 'wilderness' with a noble, albeit primitive, culture.[104]

Fraser Darling had a very different conception of the Highlands, but it was just as romantic and naive. He considered the land devastated, but he idealized the traditional culture and its land use because they presented him with a model to which to aspire. To him, modern, industrial man was 'the climax-breaker.... Instead of living with nature, man takes himself out of the biotic community and thereafter is involved in the fight against nature—a fight in which he has become dangerously successful'.[105] As his environmental philosophy evolved, the rural peasant ideal was a critical component. Later he added Amerindian cultures to this ideal and used ecology to defend it.[106] However, scientists, anthropologists, and historians are now exposing the myth of the so-called 'ecological Indian', showing that this ideal is an intellectual construction not entirely based upon reality.[107]

In their basic desire to survive in a harsh environment, Fraser Darling argued that the Highlanders 'arrive[d] empirically at truth which we are apt to think needs discovery by

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[103] Henrika Kuklick, *The Savage Within: The Social History of British Anthropology, 1885-1945* (Cambridge, 1993ed), 244.
[104] T.M. Devine, *Clanship to Crofters' War: The Social Transformation of the Scottish Highlands* (Manchester, 1994), 84-99; for a literary analysis see Peter Womack, *Improvement and Romance: Constructing the Myth of the Highlands* (London, 1989), 2.
[105] Fraser Darling, 'Man's Ecological Dominance through Domesticated Animals on Wild Lands', in William L. Thomas, Jr, ed, *Man's Role in Changing the Face of the Earth* (2 vols; Chicago, 1956), ii. 779.
[106] Fraser Darling, *Pelican in the Wilderness* (London, 1956), 169.
[107] Shepherd Krech III, *The Ecological Indian* (New York, 2000); Smout, 'Highland Land-Use'.

the scientist'.[108] Empirically, they learned what economy, what subsistence, and what political structure were best suited for their environment. Sheep and deforestation destroyed the delicate equilibrium, the 'climax', of both the Highland environment and culture: 'pressures and infiltrations by a dominant group on an ecological climax-like culture which, to borrow a nautical analogy, has no sea room in which to trim and tack, made for danger.'[109] Fraser Darling blamed modern Britain for the Highland problem. The region's declining population and pitiful economy all stemmed from the dominant society's ruthless destruction of the Gaels' relationship with the land, the fragile equilibrium. Because the problem was fundamentally environmental, the remedy had to be as well. Economic considerations were subsidiary when he exclaimed that 'Both parties [British and Gaelic] should forget the notion of numerical, financial, and technological dominance and face the facts, of difference and of environmental limitations, as intellectual equals'.[110] What he advocated was a return to sustainable traditional agriculture—a revival of souming, sheiling, and runrig. He proposed the re-introduction of traditional stock breeds, a drastic reduction of sheep populations, a return to the communal cattle industry, and afforestation.

But most of all, Fraser Darling wanted the rest of Britain to understand and learn from the Gaelic community's 'historical' relationship to their environment. He saw lessons in the empirical knowledge collected by the Gaels over centuries of experience. He always considered the best science to be that learned through experience. He prided himself that he was willing to get his hands dirty in the name of science, and he urged everyone else to follow his, and the Gaels', lead.[111] In his opinion, modern Britain was too bent on its conquest of nature to realize its own basic reliance upon the environment. Quite simply, he believed modern society was destroying its own environment just as they had the Highlands'. The model of the Highlands, with its population boom in the nineteenth century followed by its present state of deterioration, was a pessimistic model for humanity. It was a grim reminder that all human cultures were bound to their environment. The

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[108] Fraser Darling and Morley, 'Social Situation', 302.
[109] Ibid, 358.
[110] Ibid.
[111] Fraser Darling, 'The Way I Have Come', i. 36.

harshness of the Highland environment meant its exploitation occurred more rapidly than elsewhere, but its lesson was applicable to all environments.

The relationship that Fraser Darling described between the development of Gaelic culture and the soil upon which they lived was deceptively simple. The organismal metaphor and the ideal of equilibrium made it so. He argued that the destruction of an equilibrium by the invasion of modern culture caused the Highland problem. Therefore, he proposed a remedy to revert the devastation through what he called 'applied ecology': conservation. Conservation seemed as simple a remedy as his understanding of the Highland problem. However, conservation was a nebulous term that defied straightforward definition and application. As a result, a great portion of Fraser Darling recommendations would be proven impracticable.

The single most critical flaw in the *West Highland Survey* and Fraser Darling's environmental philosophy was its ecological foundations. Like his history, his ecological models failed to pass the test of time.[112] His devotion to Clementsian ecology and Allee's theory of cooperation had led him to propose a fundamental link between the ecology of the Highland region and the development of the Gaelic culture. In the years immediately following the war, however, there was a major shift in ecological thinking. Fraser Darling, however, had largely removed himself from scientific advancement after he spurned the academic life for the Highlands in the 1930s. Ironically, the geographic isolation that he had studied as part of the Survey had slowly opened up a similar gulf between him and his scientific peers. Such was this gulf that Fraser Darling was terribly frustrated when he attempted to return to academia in the 1950s.[113] His science had become suspect. Even his once stalwart support from Oxford University Press wavered when editors discussed his latest book in 1957: 'he was accused of being a popular writer, prone to make broad

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[112] In addition to environmental history, the social, political, and economic history of the Highlands has also been revised since *West Highland Survey*. In particular, there has been a rejection of the idea that Highland society was timeless and unchanging before 1745. The most recent studies include Dodgshon, *From Chiefs to Landlords* and Devine, *Clanship to Crofters' War*.

[113] Lord Michael Swan to Boyd, 9 March 1985, StAUL MS 38449/30.

generalizations for which there was no real scientific basis.'[114] While the discipline evolved further in the universities, Fraser Darling continued to espouse the same ecology to which he had been introduced in the 1920s.

In the 1940s, ecosystem ecology dominated the science and it undermined much of Fraser Darling's own ecological beliefs. Adopting the principles of Tansley's ecosystem theory (1935) and Elton's food pyramid (1927), Raymond Lindeman reduced ecology to a matter of energy flow to produce a more mechanistic theory that dominated the post-war years.[115] As Gregg Mitman notes, this had a serious impact upon the older organismal view of community as espoused by the Clementsian model: 'the community as organism was transformed through the language of cybernetics into a self-regulated machine.'[116] The ecosystem ecological model was more mechanical than organismal, reflecting a changing world geared towards unprecedented industrial and economic growth in the atomic age.[117] It was more reductionist than holistic. It was mathematically and economically based, providing a stronger quantitative framework and a more utilitarian attitude towards the natural world.

Ecosystem ecology marked a major shift in ecological thought and philosophy, and it dominated the post-war period.[118] Allee's theory of cooperation similarly suffered as ecologists 're-discovered' competition as a major factor in community development. Ecosystem ecology, with its basis in thermodynamics, system theory, and complex mathematical models, turned away from the optimistic ideal of cooperation and organicist modelling toward an interest in engineering and the value of the individual and competition.[119] The ecologist as social healer had become the environmental engineer.[120]

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[114] P.J. Spicer to The Publisher, Amen House, 4 November 1957, Wild Life in an African Territory, OUP 7591.
[115] For further discussion of the development of 'New Ecology' see Worster, *Economy of Nature,* 306-315; cf. McIntosh, 'The Myth of Community as Organism', 426-438
[116] Mitman, *State of Nature,* 141.
[117] See Worster, *Economy of Nature,* 301-304.
[118] Mitman, *State of Nature,* 140-141.
[119] Ibid, 8.
[120] Ibid, 7.

Socio-biological theory followed a similar path. Academically, the science of ecology had left Fraser Darling behind.

This situation was made clear by the scientific reception of Fraser Darling's book *Natural History in the Highlands and Islands* (1949). Though well received by the general reader, it did not fare well among his peers. Professor V.C. Wynne-Edwards of the University of Aberdeen wrote a scathing review in *The Scottish Naturalist*, commenting at length on 'the surprising number of half-truths and errors in the book'; he further denounced it, stating that 'the author has not been deterred by them either from embracing topics with which he has had no opportunity of becoming fully conversant'.[121] Among Fraser Darling's scientific deficiencies, Wynne-Edwards listed plant ecology, marine biology, and avian biology. The only positive note in the review, he 'heartily endorse[d]' Fraser Darling's conservation objectives. As one interviewer noted, 'Fraser Darling has ranged more and more widely, generalizing as he goes'.[122] The breadth and holism of his work and ideas increased his generalization and brought distrust from ecologists in the 1940s.

Though his ecological models may have been obsolete, Fraser Darling's philosophy for life through sustainable relationship with one's environment was not. If anything, it was premature. His proposal for conservation to solve the Highland problem was revolutionary in scope and thought, but his conservation was not the sort his employers had envisioned. Conservation as 'ecology applied' was not what the Department of Agriculture for Scotland deemed necessary for Highland development. The *West Highland Survey* is justly credited for its groundbreaking work, particularly for its demystification of the ecological side of the Highland problem Although it failed to impress the Department of Agriculture for Scotland, it piqued the interests of Julian Huxley and American social and conservation thinkers.

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[121] V.C. Wynne-Edwards, review of *Natural History in the Highlands and Islands* by Frank Fraser Darling, *The Scottish Naturalist*, 60 (1948), 59; see also H.N. Southern, review of *Natural History in the Highlands and Islands* by Frank Fraser Darling, *Journal of Animal Ecology*, 18 (1949), 125-126.

[122] Chisholm, *Philosophers*, 43.

Ironically, the romanticism which blurred the objectivity of the *West Highland Survey* was an essential part of its attraction. Fraser Darling's holistic view of ecology and his environmental philosophy, including the rural, peasant ideal, had particular resonance across the Atlantic. This was not surprising considering American thought dominated his ecology. In addition, his philosophical ideas drew heavily from Americans such as Paul Sears and Aldo Leopold. In the United States, Fraser Darling found a longer history of environmental thinking that was similar to his own. There he was able to devote himself to his ecological and philosophical ideas. His holistic ecology and philosophy made him a key figure in Britain's environmental movement twenty years later. They became mainstream in the late 1960s and 1970s after he gave the Reith Lectures for the BBC in 1969.

CHAPTER 4

SOLVING THE HIGHLAND PROBLEM: EVOLUTION, CONSERVATION, AND LAND USE IN THE HIGHLANDS

In the conclusion of *West Highland Survey*, Fraser Darling gave three options for dealing with the Highland problem: first, modern Britain could simply ignore it and forcibly integrate the region and its people into the broader culture; second, Highlanders could collectively rebel and stubbornly refuse to change; and third, Highland culture 'can accept change and evolution in the conscious poise of its own strength and its own values'.[1] He cited the first as the preferred choice of British policy since the eighteenth century and argued that it had 'crippled Gaeldom'. Fraser Darling equally decried the second choice of strict preservation, declaring that it 'implies death from within'. He used a biological analogy to illustrate it: 'an organism which declines challenge and attempts passive defence is doomed. It can no longer evolve, but becomes encysted.'[2] Given these stark choices, few could reasonably deny the validity of the third option. However, the course of cultural evolution was rooted in ambiguity. The notion that the Gaels could accept change and evolve, while keeping their unique culture, was a lofty ideal, but it proved difficult to articulate it into a realistic plan. As a result, *West Highland Survey* foundered in its attempt to influence policy in the West Highlands.

Fraser Darling accepted that this middle ground between two extremes presented a difficult situation in understanding, definition, and application. In addition to presenting the evidence for the Highland problem and his opinion of its causes, the core of the *West Highland Survey* offered his proposed cure. After describing the magnitude of humanity's destruction of the Highland environment and modern society's destruction of Gaelic culture, Fraser Darling gave hope by declaring the potential for full recovery. Because his diagnosis of the Highland problem was ecological, it should be no surprise that his cure was, too. But while reviewers praised him for his novel reading of the Highland problem,

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[1] Frank Fraser Darling and Averil Morley, 'The Social Situation', in Frank Fraser Darling, ed, *West Highland Survey: An Essay in Human Ecology* (Oxford, 1955), 358-9.
[2] Ibid, 359.

they were more circumspect about his cure. Fraser Darling advocated an evolution of Gaelic culture by methods of conservation. His use of 'evolution' and 'conservation' was troublesome because both terms defied precise definition, and they had varied meanings and connotations.

Fraser Darling's choice of the term 'evolution', to describe the method he prescribed for Highland rehabilitation, created contradictions. The word 'evolution' existed on two distinct levels: in everyday use it meant gradual change or development over time; in the biological sciences its use was more precise but risky because, though it pertained specifically to the biological evolution of a species over time, no one agreed upon its mechanism. In his use of the term, Fraser Darling drew upon both meanings. 'Evolution' suggested that over a period of time the Gaelic culture was capable of naturally changing, or developing, like an organism, into a more developed culture capable of surviving in the modern world. Because Fraser Darling used an organismal analogy to describe culture and used organismal ecology to understand the Highland problem, his adoption of 'evolution' for its cure followed a familiar pattern.

'Evolution' as progressive developmentalism gave Fraser Darling's remedy an optimistic tone, which was essential considering the gravity of the problem he described throughout *West Highland Survey*. It suggested that healing would be natural and internal. He wrote that human-induced devastation of the land was the 'plain primary reason why there are now few people and why there is a constant economic problem' but added that the 'devastation has not quite reached its uttermost lengths'.[3] Because evolution was slow and incremental and took time, he thought 'a period of a century is probably needed' before the Highland problem was resolved.[4] Even before it was complete, the Survey was criticized for the length of its proposed cure of the Highland problem. By using the term 'evolution', therefore, Fraser Darling invoked a broadly respected idea that could account for the necessity of such a long period of time—though, of course, biological evolution would take much longer than a century.

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[3] Fraser Darling, 'The Ecology of Land Use', in Fraser Darling, ed, *West Highland Survey*, 192.
[4] Ibid, 193.

Fraser Darling was not, however, suggesting biological evolution, but social evolution. As a field naturalist in the 1930s, he had been particularly concerned with the social behaviour of animals, which he studied through diligent observation. Utilizing similar methods in his study of Highland human society, he came to similar conclusions on human social behaviour, namely that cooperation ensured a healthier society especially in the face of environmental obstacles such as the Highland climate and poor soils. He was not explicit about his personal interpretation of evolution. Certainly during his PhD at the University of Edinburgh he was thoroughly indoctrinated into genetic theory, especially under the tutelage of the geneticist F.A.E. Crew. However, his espousal of Clementsian ecology suggests that he leaned towards a Lamarckian interpretation of evolution, at least in social development. Frederick Clements promoted Lamarckian evolution, a belief which bolstered his organismal view of plant communities.[5] As David E. Allen has noted, ecology at the end of the nineteenth and the early twentieth century was a holistic natural science that was a more pleasant and ethical alternative to the theory of evolution.[6]

Fraser Darling's own espousal of organismal ecology, his belief in cooperation as a major instigator of social health and progress, and his support of environmental determinism as a mechanism for social development suggest a similar view of evolution.[7] This view allowed for an ethical component and the option of individual and social choice to make changes and shape social evolution.[8] Remarking 'on the natural history of society', Fraser Darling asserted 'that tradition and accumulated experience are part of man's environment, and for all the importance of the physical and biological factors..., the ethos is still the biggest ecological factor of all on the life of the individual'.[9] In day-to-day life, acquired tradition and experience were greater forces of social change than biological ones,

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[5] Robert P. McIntosh, *The Background of Ecology* (Cambridge, 1985), 259.
[6] David E. Allen, *The Naturalist in Britain* (Princeton, 1994ed), 219.
[7] Maureen A. McCormick, a doctoral student in History of Science at the University of Oklahoma, is examining Fraser Darling's position on biological determinism in her dissertation, 'Cold War Conservation: International Science, National Resources, and Reproductive Limits', as yet not submitted: email correspondence, 21 February, 2003.
[8] See Greta Jones, *Social Darwinism and English Thought* (Brighton, 1980), 78-99.
[9] Fraser Darling, 'The Ecological Approach to the Social Sciences', *American Scientist*, 39 (1951), 254.

suggesting that Fraser Darling relied upon Lamarckian methods of evolution to understand social evolution.

In *West Highland Survey*, Fraser Darling examined one particular human society's evolution. Throughout, his inclination towards environmental determinism as a mechanism of evolution was strong. Recounting the Survey to an American scientific audience, he described the Gaels as a separate human race: 'Here is a race of people of probably greater average intelligence and intellect than the dominant group, indistinguishable from it in physical appearance. And...it was overlooked how different were the inner rhythm of life and the style of thought and tradition.'[10] To him, the Gaels' racial difference was the result of thousands of years' experience of living in relative isolation in a harsh environment. Environmental challenges directed the evolution of their social, political, economic, and intellectual ways into a distinguishable race; however, two hundred years of forced integration with modern British society had almost destroyed it and the environment that had shaped it: [11]

> Gaeldom has been and still is a living culture, and...in the distant past it was an example of a culture finely adjusted to an environment which placed severe limitations on human existence. As ecologists we are of opinion that such an environment allows no great latitude of behaviour in a culture without serious repercussions and consequence. Change which would not appear to be remarkable in...the environment of southern England might be sufficiently great in the Highlands and Islands as to explode or destroy the culture.[12]

These environmental challenges made their society distinct. This idea of challenge and response was similar to part of Arnold J. Toynbee's theory of civilization. For Gaelic culture to withstand the challenge of modern society, Fraser Darling, therefore, called for action, which included cultural evolution and conservation moulded to the uniqueness of the environment and its culture.

The evolution that Fraser Darling proposed, however, was neither natural nor internal because its method, conservation, required far-reaching external authority to proceed. He envisioned a regional authority with executive powers to direct the Highlands'

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[10] Ibid, 246.
[11] Ibid, 246-247.
[12] Fraser Darling and Morley, 'Social Situation', 358.

cure along ecological lines, arguing that 'the first requirement is a coordinated scheme of habitat rehabilitation'.[13] This consisted of an 'integration of scientific and politic action on an ecological level'.[14] It entailed not only a rehabilitation of the environment, but a return to what Fraser Darling saw as the ecologically-sound agricultural and social traditions of the Gaelic culture. With his developing environmental ethic, he believed such rehabilitation would be psychologically beneficial, not only to the Highlanders, but to Britain as a whole. He did not propose 'to put the clock back'; rather, he envisioned a progressive evolution within Highland culture that would create a thriving alternative to British culture.[15] To achieve this goal, however, his championship of conservation meant that his proposed evolution within Gaelic culture could not proceed without significant direction from outside. Conservation entailed scientific advice and government intervention. More significantly, the many meanings and methods of conservation made it a politically contentious tool. In a broad sense, conservation as a method of rehabilitation appealed to everyone; in its actual definition it did not.

Conservation was not a new concept. By the mid-twentieth century, its definition had evolved so that it embraced a broad spectrum of intentions, ideals, and meanings. By the end of the Survey, it was clear that Fraser Darling's own vision of conservation was at odds with his employer's, the Department of Agriculture for Scotland. The Department was not adverse to conservation. Increased efficiency of agricultural production through the application of conservation measures was of great concern to wartime and post-war Britain. Such efficiency appealed to Fraser Darling, but in interests of sustainability rather than economic productivity. He laid greater emphasis upon the aesthetic and ethical components of conservation. In particular, he extended conservation's scope to include human societies. However, these components were decidedly subjective compared to efficiency and productivity, which were more quantifiable, tested, and accepted. Ultimately, the political success of the *West Highland Survey* lay upon Fraser Darling's definition of 'conservation'.

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[13] Fraser Darling, G.G. Hayes, and Morley, 'The Agricultural Situation', in Fraser Darling, ed, *West Highland Survey*, 248.
[14] Fraser Darling and Morley, 'Social Situation', 359.
[15] Ibid, 323.

Like his conception of ecology, Fraser Darling's conservationist ideas relied heavily upon North American models. Although Richard Grove traces conservation ideas and practices as far back as sixteenth-century French and British island colonies, common use of the term is more often associated with the United States in the early twentieth century.[16] 'Conservation' was invoked in the United States in response to fears of limited natural resources after centuries of unrestricted territorial expansion and exploitation of the land. Under the practical guidance of Gifford Pinchot of the U.S. Forestry Service, conservation was the tool with which the U.S. government sought to maintain the nation's natural resources for future use.[17] Stephen Bocking argues that 'In adopting the Americans' terminology British ecologists evidently hoped to emulate the success of North American conservationists in achieving recognition and support for their work'.[18]

From its inception, the term 'conservation' was ambiguous because people had different meanings and goals when they evoked it. Loosely meaning the careful use of natural resources, it allowed a wide variety of definition. As the twentieth century progressed, different branches of conservation thinking clashed. Clayton Koppes defines three major themes in the history of American conservation: efficiency, equity, and 'esthetics'.[19] This simple division of conservation into three separate schools of thought brings important clarity to understanding the multifaceted quality of conservation. Advocates of efficiency pursued greater control of natural resources through management and engineering to ensure efficiency and productivity. Supporters of equity felt that natural resources should be shared fairly so that everyone, present and future, could benefit equally. The aesthetic group believed in the preservation of beauty in nature and believed in nature's intrinsic value. Koppes explains that all three ideas existed coevally, not only as their own

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[16] Richard Grove, *Green Imperialism Colonial Expansion, Tropical Island Edens, and the Origins of Environmentalism, 1600-1860* (Cambridge, 1995).
[17] See Samuel P. Hays, *Conservation and the Gospel of Efficiency* (Pittsburgh, 1999ed); for Fraser Darling's own account of conservation's North American origins see Fraser Darling, 'Conservation and Ecological Theory', *Journal of Animal Ecology*, 33 (1964), 39.
[18] Stephen Bocking, *Ecologists and Environmental Politics: A History of Contemporary Ecology* (New Haven, 1997), 23.
[19] Clayton R. Koppes, 'Efficiency, Equity, and Esthetics: Shifting Themes in American Conservation', in Donald Worster, ed, *The Ends of the Earth* (Cambridge, 1988), 230-251.

separate schools of thought, but within each conservationist's idea of conservation. What made conservation troublesome was that one person's definition depended upon how much emphasis he or she placed in each school of thought. As Koppes notes, 'these approaches often proved incompatible', creating 'a volatile compound in which the relative strengths of the three components fluctuated over time and according to the issue'.[20]

Koppes's model neatly describes the nature of conservation in the twentieth-century United States, and it also makes sense of similar trends in Britain. In particular, it explains the major differences of opinion between Fraser Darling and the Department of Agriculture. Fraser Darling's conservation embraced all three schools of thought. As an exponent of efficiency, he believed that scientists, especially ecologists, were in the expert position to advise on the rational use of land. In terms of equity, he envisioned wise use of the environment as a benefit for its people. This accommodated best his grand vision of a rehabilitated Gaelic society. A great admirer of the ideals behind President Franklin D. Roosevelt's Tennessee Valley Authority (TVA), Fraser Darling advocated a similar institution in the Highlands. It also appealed to Tom Johnston, the Secretary of State for Scotland, because it coincided with his dream for a self-sufficient Highland population.[21] After years of wrangling, Johnston had ensured the establishment of the North of Scotland Hydro Electric Board (NSHEB) in 1943.[22] He and Fraser Darling envisioned the Board as a tool for rural renewal in the Highlands along similar lines to the TVA. Fraser Darling also ranked aesthetic considerations high in his vision of conservation. As a member of the Scottish National Parks Committee and the Scottish Wild Life Committee in the late 1940s, he was an enthusiastic supporter of nature conservation for the sake of science, recreation, and social health. In his popular books, he would blithely discuss the rights of nature and animals and the power of natural beauty.[23]

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[20] Ibid, 234.
[21] Graham Walker, *Thomas Johnston* (Manchester, 1988), 10-14.
[22] Christopher Harvie, 'Labour and Scottish Government: The Age of Tom Johnston', *Bulletin of Scottish Politics*, 2 (1981), 14.
[23] See for example Fraser Darling, *Natural History in the Highlands and Islands* (London, 1947), 264.

Amongst his duties as Secretary of State, Johnston also headed the Department of Agriculture, Fraser Darling's employer, but this did not mean the Department shared his values. Although the equity emphasis in Fraser Darling's vision of rehabilitation of the Highlands corresponded with Johnston's, it ran against the more conservative, efficiency-supporting members of the Department of Agriculture. War dictated a need for plentiful and cheap food, but the emphasis on productivity and profit was also encouraged by the influential presence of long-term members of the Department, who were inclined to trust orthodox methods of land use.[24] According to John S. Gibson, historian and former member of the Highland Panel, 'any new solutions to the Highland problem were looked upon with askance'.[25] Crofter welfare was a major concern of the Department. By way of subsidies and roving advisors from the Agricultural Colleges, the Department encouraged cooperative and efficient agricultural practices in the Highlands.[26] The principles of utilitarian conservation, as espoused by the efficiency school of thought within conservation, would have appealed to their notions of improvement.

Thus, three major players behind the West Highland Survey—Fraser Darling, Tom Johnston, and the Department of Agriculture for Scotland—all had specific reasons to champion conservation. In addition, the Development Commission supported it as they strove to rehabilitate the faltering economy and society of Britain's rural sector. Differences lay, however, in how each interpreted the term and intended its use for solving the Highland problem. Simultaneous to this developing tension in the Survey, conservation was becoming a major contender in national politics. The situation in the Highlands between Fraser Darling and the Scottish Office was in many ways a microcosm of a greater discussion on the role and meaning of conservation in Britain which was taking place on a much higher level of government. It was an important discussion for both the fortune of Fraser Darling and his report, *West Highland Survey*, and for the future of nature conservation in Britain because, as John Sheail cites, the origins of Britain's modern nature-

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[24] John S. Gibson, telephone conservation, 5 March 2003. I am grateful to Professor T.C. Smout for suggesting I talk with Mr. Gibson.
[25] Ibid.
[26] See David Milne, *The Scottish Office* (London, 1957), 53-55.

conservation movement rested in the very same years that Fraser Darling directed the Survey.[27]

Despite the long existence of conservation-minded initiatives by individuals and societies in Britain since the nineteenth century, the interest by the government in such ideas in the 1940s was associated with the war. Lessons learned from the First World War had necessitated a need for conservation to ensure national self-sufficiency in times of crisis. The government was determined that Britain would not face the same food and timber shortages it had experienced during the First World War when essential shipping and foreign markets had evaporated. At the outbreak of war with Germany in 1939, only 35 percent of the food consumed in Britain was domestically produced; by 1944 it was 60 percent.[28] Achieving such figures had meant an extensive 'plough up' campaign through the reclamation of marginal and pastoral lands. In addition, the extensive use of subsidies and price controls ensured affordable food and solvency amongst farmers. To avoid another timber shortage, the Forestry Commission was established in 1919 to provide for Great Britain's future timber needs. Meeting the basic requirements of the beleaguered nation entailed unprecedented government intervention into rural affairs.[29] It also required expert advice on how to exploit the nation's natural resources in the most efficient manner.

To these ends, the government was also concerned during the war with the post-war state of the nation's cities and countryside. From the earliest days of the war, planning the peace was nearly as important as making sure the war was won. A 'land fit for heroes' was an essential aspect of war planning. As Minister of Works and Building in 1940, Lord Reith made the planning of post-war reconstruction one of his ministry's priorities, and rural land use and the preservation of the countryside were critical components in his

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[27] John Sheail, 'War and the Development of Nature Conservation in Britain', *Journal of Environmental Management*, 44 (1995), 267-283.
[28] L. Dudley Stamp, *Nature Conservation in Britain* (London, 1969), 24-45; see also I.G. Simmons, *An Environmental History of Great Britain* (Edinburgh, 2001), 202-207.
[29] R.J. Lloyd and G.P. Wibberly, 'Agricultural Change', in J. Davidson and R.J. Lloyd, eds, *Conservation and Agriculture* (Chichester, 1977), 12-13.

planning.[30] The most immediate concern was to avoid the agricultural depression that had followed the First World War. Guaranteed subsidies and price controls throughout the war and immediate years following alleviated some worry, but the physical state and the economic future of the countryside after the agricultural depression of the interwar years and the devastation of the war remained a concern.

Although the Society for the Promotion of Nature Reserves, the British Ecological Society, and a handful of private individuals and politicians had promoted nature conservation before the war, it took the war for their voices to be heard by the government. This was certainly the case for Fraser Darling, and it helps account for his remarkable ascension from popular author and animal behaviouralist to government advisor in the 1940s. Max Nicholson, a civil servant during the war and a renowned ornithologist, remarked on the irony that it took the suspension of normal politics to promote conservation interests successfully.[31] However, it reflected a genuine wartime concern with the environment, from feeding the population to rural welfare and post-war Britain; it demonstrated the government's interest in expertly planning both the war and the peace to avoid the shortages of the First World War and the subsequent economic depression.

After much badgering, committees within the Society for the Promotion of Nature Reserves and the British Ecological Society became, in essence, scientific arms of the government; the line between their responsibilities and those of regular civil servants blurred.[32] These scientists were able to find their niche in reconstruction, advising on national parks, nature preserves, and town and country planning. As J.B. Cullingworth, the official historian of British environmental planning, observes, 'the more that political issues can be made into technical issues, the greater is the chance of achieving political success'.[33] Surrounded by the objectivity of their science, ecologists provided a mantle of rationality, hope, and escape from the uncertainty and destruction of war.

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[30] Sheail, 'Scott Revisited: Post-war Agriculture, Planning, and the British Countryside', *Journal of Rural Studies*, 13 (1997), 387-398.
[31] Sheail, ' War and the Development of Nature Conservation in Britain', 281.
[32] Ibid, 267-283.
[33] Quoted in ibid, 281.

Fraser Darling's own participation in this meeting between policy makers and scientists came about due to Tom Johnston's patronage. In the early years of the war Fraser Darling toyed with the idea of standing for Parliament, especially after the positive reception of his first articles on the Highland problem in 1940.[34] In a letter to his editor at Oxford University Press, he wrote that 'it began to dawn on me that a man of science should be prepared to enter his country's legislature & take his part in the shaping of policy'. He was, therefore, thinking about standing 'for a northern constituency in which my special knowledge may be useful'.[35] Johnston's intervention in 1942, however, seemed to obviate the necessity for elected office to shape policy. With the same confidence in science and in his view of the Highland problem, Fraser Darling could influence policy by being a scientific advisor: first in his role as a part-time demonstrator and advisor to the crofter; and later as Director of the West Highland Survey. The appointment made him an apolitical figure. Many years later, Fraser Darling remarked that 'political economy needs the ecologist who can apply himself without becoming a politician'.[36] Johnston took advantage of the partisan independence of the Coalition Government.[37] He ensured that Fraser Darling was employed by the Department of Agriculture for Scotland, and he also appointed him to the Scottish National Parks Committee and the Scottish Wild Life Conservation Committee. His fellow committee members included famous politicians and scientists, and it appeared, in all respects, as if Fraser Darling had achieved his goal to use his scientific knowledge to influence policy.

However, Fraser Darling's laurels all rested upon the West Highland Survey and its published report, all a product of Johnston's will. The Survey gave him his standing, especially in its ambition to bridge the gap between animal ecology and human sociology.[38] In addition, Fraser Darling's Survey indirectly promised to help bridge another gap that was

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[34] Fraser Darling to Sisam, 19 February 1940, Naturalist on Rona, OUP 803648; Fraser Darling to J.L. Campbell, 17 January 1942, J. Morton Boyd, Frank Fraser Darling Papers, StAUL MS 38449/32.

[35] Fraser Darling to Sisam, 19 February 1940, OUP 803648.

[36] Fraser Darling, 'A Wider Environment of Ecology and Conservation', *Daedalus*, 96 (1967), 1010.

[37] Devine, *The Scottish Nation* (London, 1999), 552; see also Walker, *Thomas Johnston*, 168.

[38] See John Berry to Max Nicholson, 23 July 1948, StAUL 38449/32.

emerging between farming and conservation. As agriculture became more mechanized and dependent upon chemical fertilizers in its pursuit of efficiency, productivity, and profit in the twentieth century, it distanced itself from the objectives of nature conservationists. Therefore, if Fraser Darling, who had established himself as an ardent supporter of nature conservation, could solve a social and economic problem that largely dealt with the issue of land use, his political and scientific status would be assured. He sought to unify the three schools of thought in conservation with ecology; as Koppes argues, 'for a pragmatic society, ecology provided a crucial scientific underpinning which had overtones of objectivity and utility that appeared to transcend differences in values by providing objective reasons'.[39]

To solve the Highland problem, Fraser Darling spoke of evolution, but he envisioned a highly controlled evolution along the principles of conservation. This contradiction existed because, despite his desire to use an authority to plan and finance this evolution, he wanted change to come from within the Gaelic culture: 'Change must come about if the deep crofting districts are not to die, but it will not be imposed on them successfully, although ideas and help must come from the outside.'[40] With direction and suggestion from outside experts, he envisioned the crofters cooperating and leading their own evolution. First, the crofters needed to appreciate their own culture; then Britain needed to appreciate it and help them reinstate their former glory: 'Gaeldom, when it becomes conscious of its heritage, does not want to die, and if Britain is imaginative enough, she will not wish to lose the contributions to graceful living which the Gaelic culture can make.'[41] He stressed that 'such help as the outer world can give to the Highlands must be done indirectly as from one culture to another and not from superior to inferior'.[42] This 'imaginative' approach was Fraser Darling's variant of the TVA.[43]

The attraction of the TVA to Fraser Darling is easy to understand. In general, the situation of the Tennessee Valley in the 1930s was similar to the Highlands'. Both regions

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[39] Koppes, 'Efficiency, Equity, Esthetics', 246.
[40] Fraser Darling and Morley, 'Social Situation', 317.
[41] Ibid, 358.
[42] Ibid, 318.
[43] Ibid, 359.

were geographically isolated, predominately rural, and ecologically devastated through deforestation and poor agricultural practice. Both were inhabited by people who were desperately poor in comparison to the rest of the population. And, finally, both had significant potential for the development of hydro-electricity. Roosevelt's interest in the welfare of the people of the Tennessee Valley was similar to Johnston's interest in the Highlands. Roosevelt's idea of integrated regional planning, initially imposed from outside and led by experts, but followed through by the people themselves by way of 'grass-roots democracy', fitted exactly with what both Johnston and Fraser Darling desired for the Highlands. Fraser Darling declared that 'the Tennessee Valley Authority is perhaps the world's greatest example of a body of men seeing a problem of the kind with which we are concerned and surmounting sufficient obstacles of restraint to get it to work'.[44] It was 'a splendid ecological project'.[45]

Fraser Darling compared the British government unfavourably to the United States', citing that Britain needed to revolutionize thought in rural development, allowing for imagination and the questioning of orthodoxy. Though he looked to Johnston's hydro-electricity scheme with some hope, he feared that the generation of electricity was a higher priority than regional development:

> A great opportunity was missed in this country when the North of Scotland Hydro-Electric Board's programme was inaugurated. Of course, Britain has started from an entirely different standpoint from TVA, in that her first intention is to harness the water power of the Highlands for export to the centres of industry. There is nothing whatever in the Board's structure or programme which makes it a body able to co-ordinate and develop Highland rehabilitation.... Criticism is of the Government which has declined to start from the TVA standpoint of saying, as it were, here is a people and a region in trouble; how can the trend be set the other way; can dams and the electricity generated be the means by which we can motivate the whole rehabilitative front?[46]

Fraser Darling believed hydro-electricity could be the base by which crofting could be redeemed. Not only would electrification increase quality of life, it would be the means by which real social and agricultural improvement occurred. The building of dams entailed extensive regional planning, and like the TVA, Fraser Darling thought this planning should

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[44] Ibid.
[45] Fraser Darling, 'Ecological Approach', 248.
[46] Fraser Darling and Morley, 'Social Situation', 359-360.

have explicit, if not over-arching, objectives to improve the region's social condition. In fact the NSHEB had been intended to do just that, and under Johnston's leadership it made an effort to improve social and economic conditions under its so-called 'social clause'. Though it was able to retain its independence despite the nationalization of the electricity industry, it was never able to fulfil its social objectives.[47]

Fraser Darling was drawn to the social ideology behind the instigation of the TVA which had led to the explicit statement in its enabling act (1933) of its role in rural development. Sections 22 and 23 of the act made provision for extended surveys and reports of the valley's rural situation and 'for the general purpose of fostering an orderly and proper physical, economic, and social development' and for ensuring 'the economic and social well being of the people living in said river basin'.[48] The TVA was a great experiment in regional planning and 'multipurpose development', which was an early embodiment of Roosevelt's New Deal.[49] It was charged with generating cheap power, controlling flooding, improving navigation, and reinvigorating the valley's agriculture and society. Richard Lowitt explains the TVA's social ideology: 'In the Tennessee Valley...a technical intelligentsia allied with workers and farmers could create from a devastated region a garden of beauty and well-being, a region in which the capitalist and financier would be relegated to a marginal role and in which intelligence and good will could prevail.'[50] As such, it attracted social planners like Julian Huxley, Fraser Darling, and Tom Johnston.[51] It became for many 'a model for...coordinated regional development'.[52]

In reality, however, the TVA did not achieve its ideological aspirations, which undermined its function as a model for further regional planning. Twenty years after the enactment of the TVA, Fraser Darling admitted that 'TVA has not done yet what it set out to do', but he qualified that it could not be criticized because 'at least it stands as a sincere

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[47] Cameron, 'The Scottish Highlands: From Congested District to Objective One', in T.M. Devine and R.J. Finlay, eds, *Scotland in the Twentieth Century* (Edinburgh, 1996), 162.
[48] Quoted in Richard Lowitt, 'The TVA, 1933-45', in E.C. Hargrove and P.K. Conkin, eds, *TVA: Fifty Years of Grass-Roots Bureaucracy* (Urbana, 1983), 36.
[49] Ibid.
[50] Ibid, 37.
[51] See for example Julian Huxley, *TVA: An Adventure in Planning* (Cheam, c. 1943).
[52] Anthony J. Badger, *The New Deal* (London, 1989), 171.

effort to tackle the problem of being human beings in expendable environment. To that extent alone it is worth the closest study in method of integrative action'.[53] By 1945 the TVA was considered a success, but, in retrospect, it is noted that it did not fulfil its social mandate. Despite its success in providing electrification, flood control, and the establishment of farming cooperatives, larger, landowning farmers benefited disproportionably in comparison to small farmers, tenants, and black farmers.[54] Many, especially dispossessed tenants and blacks, were probably worse off.[55] After the war, the generation of power increasingly became the Authority's priority due to escalating national defence and private demand.[56] Cheap power attracted private and public industry, such as the Atomic Energy Commission, so that by the 1940s the Valley was undergoing rapid industrialization that fundamentally changed the region's rural character. The TVA was never able to plan its social role as well as it could its other functions. Consequently, its social role was piecemeal and fragmentary and declined steadily.

The TVA's failure to rehabilitate the social condition of its region, however, was not realized when Fraser Darling wrote *West Highland Survey*. It remained for him a perfect model of integrated regional development. The vague and ambiguous ideology behind the social mandate of the Authority appealed most. Despite his praise for the methods, ideology, and power of the TVA, Fraser Darling was similarly vague in his own description of a similar body for the Highlands, preferring to be as ideological and ambiguous as the instigators of the TVA had been. In part, he attributed this to the nature of the Survey: 'The task of this Survey has been primarily to find facts and present them, and certainly not to provide a master plan of rehabilitation.'[57] But he was seriously disappointed when the Taylor and subsequent Crofters Commissions were slow to consult him and failed to adopt his idea of an executive authority to oversee Highland rehabilitation.[58]

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[53] Fraser Darling and Morley, 'Social Situation', 359.
[54] Lowitt, 'The TVA', 58-60.
[55] Badger, *New Deal*, 176, 182.
[56] Wilmon H. Droze, 'The TVA, 1945-80: The Power Company', in Hargrove and Conkin, eds, *TVA*, 68-81.
[57] Fraser Darling and Morley, 'Social Situation', 362.
[58] Fraser Darling to E.H.E. Havelock, 5 January 1952, PRO D 4/1707.

In 1968, Fraser Darling argued that the newly-created Highland Development Board, with its executive powers, was just the sort of authority he had proposed in *West Highland Survey* twenty years earlier.[59] However, only in the last three paragraphs of *West Highland Survey* did Fraser Darling propose the creation of an authority to oversee Highland rehabilitation:

> after these years of work have confirmed us in the general conclusion that effective rehabilitation will call for an organization with executive authority, able to act in several fields and which will not neglect the scientific quality and interest of what is being done, nor omit the humane studies which could be the lubrication of the whole intricate machinery.[60]

Nor had Fraser Darling been alone in the plea for an executive authority: the Hilleary Committee had strongly recommended one in 1938.[61] Though realizing that such a body could be unconstitutional, Fraser Darling urged integrated planning by the Department of Agriculture for Scotland, the Forestry Commission, the North of Scotland Hydro-Electric Board, agricultural colleges, the Nature Conservancy, and the Highlands and Islands Advisory Panel.[62] Nowhere did he discuss how this could be achieved.

Such coordination across governmental agencies would have been a Herculean task, and an executive authority would simplify and smooth operations. Like the TVA, Fraser Darling envisaged a decentralized authority, free from Scottish Office and Westminster bureaucracy. He argued that the government 'must keep in the background'.[63] A major question, however, was who would do the planning and who would implement it. He hoped that 'it should be possible to get a block grant usable for Highland rehabilitation, for the Highlands and Islands Advisory Panel to be chosen on personal rather than representative status, and for this body to be strengthened by having scientific staff'.[64] Thus, Fraser Darling recommended authority based upon skills and personality. He did not feel

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[59] Fraser Darling, 'Ecology of Land Use in the Highlands and Islands', in D.S. Thomson and I. Grimble, eds, *The Future of the Highlands* (London, 1968), 50.
[60] Fraser Darling and Morley, 'Social Situation', 362.
[61] See Ian Levitt, 'The Creation of the Highlands and Islands Development Board, 1935-1965', *Northern Scotland*, 19 (1999), 90.
[62] Fraser Darling, 'The Ecology of Land Use', 193-194, 362; see also Levitt, 'Creation of the Highlands and Islands Development Board', 92.
[63] Fraser Darling and Morley, 'Social Situation', 318.
[64] Ibid, 362-363.

that more democratic representation was appropriate. Despite his avowed hope for evolution within the Gaelic community, he saw imposed authority as the best means of accomplishing it.

Though desiring change from within, Fraser Darling depended upon traditional authority figures to plan and lead the evolution. These figures included scientists, lairds, factors, and, to a lesser extent, ministers, priests, and extraordinary crofters. A colleague noted that Fraser Darling 'believed that the only hope under the existing system was the enlightened landlord'.[65] Fraser Darling explained the inability to recruit good leadership from within the Gaelic community as a product of their tradition and race: 'actual leadership may be difficult to find in an unstratified society; the ambitious quality in Western civilization is really foreign to the Gael within the townships, where he does not wish to be different from his fellows.'[66] He went on to declare that the only real leaders within the society were the lairds: 'The laird, especially if he is an hereditary one, is accepted as a leader almost without question.'[67] Second to a good laird, Fraser Darling praised the estate factor: 'The resident factors of the Highlands are today respected men who occupy a necessary niche in social stratification. Their qualifications are high and their wisdom usually great.... They are the trusted friends of the landlords and no good crofter needs to fear his factor.'[68] Third, he noted that, occasionally, religious leaders, especially in the Roman Catholic islands of the Hebrides, were good leaders: 'The Catholic priest is commonly busy about the townships seven days a week and exercises a very real leadership and pastoral influence.'[69]

Fraser Darling recognized that his endorsement of lairds and factors probably would not appeal to crofters.[70] The topic of lairds and factors was an emotive subject as some lairds were blamed for the Highland problem in the first place and factors were

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[65] Sir Robert Grieve, foreword to Boyd, *Fraser Darling's Islands* (Edinburgh, 1986), xii.
[66] Fraser Darling and Morley, 'Social Situation', 317; see also Fraser Darling, *Island Farm* (London, 1944), 199.
[67] Fraser Darling and Morley, 'Social Situation', 317.
[68] Ibid, 312; see also ibid, 308-310.
[69] Ibid, 315.
[70] Campbell to Fraser Darling, 19 January 1944, StAUL MS 38449/32.

historically disliked. However, commitment to the mechanism of internal evolution required internal leadership, and Fraser Darling considered lairds, factors, and priests to be the region's best leaders: 'Help in the social field coming to the Highlands must find the natural leaders and give to them and learn from them. The leaven must work through folk of their own people....'[71] He saw little hope of strong leadership emanating from the crofting community because even if they wanted it, 'the quality of leadership in such a community, when the leader is one of themselves, is of a different kind than that of a laird. It is altogether more subtle, pervasive but not assertive. The organizing outsider, therefore, may be easily misled and find himself working through the wrong man'.[72] In contrast, he illustrated the strong leadership of lairds in local rehabilitation with examples.[73] He also used examples to show that crofters were best off under a resident laird or factor than any other sort of landownership, including their own.[74] He, therefore, based his hopes upon the traditional, and in his words 'natural', leaders, keeping close to the region's traditional social hierarchy as established in the previous two centuries.[75]

Fraser Darling's high opinion of lairds, and, to a lesser extent, factors, is particularly helpful in understanding his idea of social and environmental planning. His promotion of the lairds in *West Highland Survey* was more restrained than it was in the early 1940s when he had proposed the establishment of a lairds' parliament to oversee Highland affairs. Answering a question from the press on whether he approved of crofter-ownership, Fraser Darling replied that he saw no reason for upsetting the status quo and that he 'should be very sorry to see the departure of the laird', to which he added his idea for a conference of lairds.[76] A man from Sutherland derided the conference as a 'farcical proposal', and surely the suggestion could not have appealed to Tom Johnston.[77] Fraser Darling's faith in the

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[71] Fraser Darling and Morley, 'Social Situation', 318.
[72] Ibid, 317.
[73] See his example of Harris laird Col. J. Douglas Walker, organizer of the Harris Crofters' Association in ibid, 335-336.
[74] See his example of Glendale in ibid, 310-311
[75] Ibid.
[76] 'West Highlands a Social Problem', *The Glasgow Herald* (15 January 1944).
[77] W. Gordon, Letter to the Editor, *North of Britain Agriculturalist and Farming News* (18 February 1944).

laird and traditional leadership emanated from his own loyalty to a conservative social structure. He wrote to John Lorne Campbell, the Gaelic folklorist and owner-proprietor of the island of Canna, after that press conference,

> I believe in the beauty & the workability of the aristocratic ideal.... There *are* good Highland lairds & I want to see them getting together to set out a policy, as part of the big problem of rehabilitation.... I want to see the likes of you & me...guiding that conference so that it shall put forth a democratic, constructive policy, devoid of the notion of privilege. The laird has a particular part to play in the Highlands where we have hardly any middle class.[78]

It is difficult to see how such a parliament would be democratic or devoid of privilege, but it shows how deeply entrenched Fraser Darling's commitment to conservative social norms was when he sought 'natural' leadership in *West Highland Survey*.

Similarly illuminating was Fraser Darling's general dismissal of religious figures, especially Presbyterian ministers, as potential leaders. In fact, Fraser Darling laid much blame for the Highland problem on religion. Like politics, he considered religion an ecological factor. He decried its role in the destruction of Gaelic culture in the eighteenth and nineteenth centuries.[79] In the twentieth century, he criticized Presbyterianism for being too harsh and for suppressing essential social interaction like singing and dancing.[80] He cited it as a cause for depopulation: 'The tyranny of religion has driven many questioning folk away from the townships.'[81] He deplored how Presbyterian ministers refused to participate in secular community matters, but he praised Catholicism and its priests for being 'liberal', social, and more secular.[82] Fraser Darling devoted only seven pages to the discussion of religion in *West Highland Survey*, though the region remained one of the most religious in Scotland.[83] His own lack of formal religious belief probably encouraged this brevity and what could be construed as disrespect for the crofters' strong religious beliefs.[84] Fraser Darling lamented that the region was not unified by religion, ideally Catholicism or

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[78] Fraser Darling to Campbell, 28 January 1944, StAUL MS 38449/32.
[79] Fraser Darling and Morley, 'Social Situation', 359.
[80] Ibid, 314.
[81] Ibid.
[82] Fraser Darling, 'Ecological Approach', 253; Fraser Darling and Morley, 'Social Situation', 315-316.
[83] Callum G. Brown, *Religion and Society in Scotland since 1707* (Edinburgh, 1997), 153.
[84] See Anne Chisholm, *Philosophers of the Earth* (London, 1972), 45, 52; Fraser Darling, 'The Way I Have Come', *The Countryman* (3 parts; 1972) i. 31-33, StAUL MS 38449/34.

the ancient Celtic Christian Church, for he felt sure it would aid in reversing the Highland problem.[85]

Thus, it becomes clear that Fraser Darling's proposed authority, which would oversee Highland rehabilitation, was to be directly led by the region's internal, 'natural' leaders with a pretence of 'democracy'; and it would be advised and guided indirectly by outside experts, especially scientists like himself. The next matter to be dealt with, therefore, was the actual policy such an authority would use to solve the Highland problem. Fraser Darling concluded that conservation, the rehabilitation of the natural environment, was the most important. The entire *West Highland Survey* was a 'Domesday Book' of information geared towards persuading its reader of the basic biological roots of the Highland problem.[86] Conservation promised to fix the environment:

> The art and science of wild-life conservation is that which brings stability or regular rhythm into a disturbed habitat, beauty and balance into the wilderness itself, and renders it productive of material and spiritual values. The Highlands as they were once were in effect a balanced complex organism, wherein the biotic communities, though apparently competing among their individual component species, were really co-operating towards that complex state which showed a richness beyond what geology would have promised, and it was a richness always accumulating over all.[87]

After conservation had brought ecological stability and balance, he suggested that the region's population and economic problems would dissipate.[88]

Fraser Darling concluded that past policy failed because it was superficial, aimed at relieving short-term, immediate problems rather than tackling the true problem, the ecological devastation:

> Two things are certain: that the land of the crofts and the common grazings are used at a low fraction of their potential and are deteriorating and that the level of agricultural knowledge is extremely low. Yet, when all notions of industry and work unconnected with the soil have been fully explored, the land and the sea will remain as the basis of any future prosperity the Highlands and Islands may enjoy.[89]

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[85] Fraser Darling to Campbell, 17 January 1942, StAUL MS 38449/32; Fraser Darling and Morley, 'Social Situation', 315-316.
[86] Fraser Darling, 'Work of the West Highland Survey', *Glasgow Herald* (12 July 1945).
[87] Fraser Darling, 'The Ecology of Land Use', 192-193.
[88] Ibid, 192.
[89] Fraser Darling, 'A Brief Historical Résumé', in Fraser Darling, ed, *West Highland Survey*, 13.

He attacked the government agencies whose interests lay in the Highlands for being too 'narrow' and 'pragmatic' in focus.[90] He criticized the Forestry Commission, the Department of Agriculture for Scotland, and the Colleges of Agriculture especially, but he attacked particular commissions of enquiry as well.[91] Not surprisingly, the Department of Agriculture, his employer, construed the criticism as insult.[92]

In the place of past policy, Fraser Darling recommended the holistic and coordinated conservation of the countryside, ideally by executive authority. First, he required a drastic cut in the sheep population and an increase in the cattle population. Not only would this be a return to a more traditional use of land, he argued that it would return the soils' fertility. In general, he recommended that agriculture be overseen, organized, and encouraged. Traditional and appropriate new techniques needed to be taught, demonstrated, and encouraged to ensure agricultural recovery. He wanted to see human foodstuffs grown again to break the crofters' economic dependence upon imports and to improve their general health. He recommended afforestation, not only for economic and British defensive needs, but for soil amelioration and social reasons: 'Cover is needed to give time to think, to do a little experimentation, and for love-making.'[93]

Given his strong opinion that the land and sea were the Highlands greatest assets, it is surprising how little Fraser Darling discussed the sea in *West Highland Survey.* Indeed, discussion of fishing and the ecology of sea was conspicuously limited. Out of a total of 363 pages, only seven were devoted solely to fishing despite his stress 'that the basis of future prosperity for the crofting areas must lie in the productive potentials of land and sea'.[94] Fraser Darling recognized that fishing was an important supplementary occupation to agriculture, especially in the Outer Hebrides, and he noted that the fisheries were rich in fish. But, he collected nothing like the data he did for agriculture, nor did he make any

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[90] Fraser Darling and Morley, 'Social Situation', 360; Fraser Darling, 'The Ecology of Land Use', 193-194.
[91] Ibid.
[92] James Hunter, 'Forgotten Blueprint for the Highlands', *The Weekend Scotsman* (20 October 1984); Boyd, *Fraser Darling's Islands,* 207.
[93] Fraser Darling and Morley, 'Social Situation', 304.
[94] Fraser Darling, 'Summary', in Fraser Darling, ed, *West Highland Survey,* 407.

serious analysis of sea use like he did for land use. Understandably, *West Highland Survey* was criticized for this deficiency; a reviewer for the *Stornoway Gazette* declared: 'The whole emphasis of the book is on land and land use, so that it presents a lop-sided or incomplete picture'.[95] J.L. Campbell was more critical because it did not appear that Fraser Darling thought the region's fisheries should be as tightly regulated and conserved for use by crofter-fishermen as he recommended the land should be.[96] Fraser Darling's reasoning for his brevity on the sea was that it had been extensively studied, but he only cited one source on the subject.[97] Still, it was a striking choice to have made considering his intention to provide a complete account of the Highland problem and the region's 'human ecology' and considering the substantial ecological, not to mention economic, impact fishing has had upon the region.[98]

In all his projected planning for the physical reconstruction of the land, Fraser Darling's primary concern was the conservation and evolution of Gaelic culture. Though he spoke little about their language or arts, he was anxious for their diet, their happiness, and even their lovemaking, and he went to great pains to link afforestation, strong cattle-sheep ratios, and home-baked foods with cultural prosperity and viability. This prosperity, however, was not defined in terms of economic profit or monetary wealth. Instead, Fraser Darling sought a more mystical and less material prosperity that was linked to his conviction that the Gaels were a different and special sort of people who had different needs and values than the rest of Britain. The tenacity with which the Highlanders have historically cared about their land has often been noted.[99] However, throughout *West Highland Survey*, Fraser Darling failed to recognize that despite their strong allegiance to the land, it had never been the Gaels' sole interest. Nor did he consider whether they wanted to be seen as different, 'primitive', or more ecologically-sound than anyone else. In idealizing

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[95] 'Were our Fathers Better Fed?', *Stornoway Gazette* (28 June 1955).
[96] Campbell, 'A Devastated Terrain', *The Times Literary Supplement* (6 May 1955); Fraser Darling and Morley, 'Social Situation', 348.
[97] Fraser Darling, 'Summary', 416; Fraser Darling and Morley, 'Social Situation', 363.
[98] For a thorough analysis of fishing in the Highlands see David Turnock, *Patterns of Highland Development* (London, 1970), 38-55.
[99] T.C. Smout, *A Century of the Scottish People 1830-1950* (London, 1997ed), 13, 66-68.

the Gaels, he was imposing his own values upon them, searching and finding proof because he sought it.

It was well recognized by the mid-twentieth century that a croft was not able to support a family; the 1954 Taylor Commission's enquiry into crofting conditions concluded: 'In the great majority of cases, the croft by itself was never capable of providing a reasonable living for a man and his family.'[100] Indeed, from the very historical foundations of crofting, crofters could not survive solely upon the land. As Walter Elliot, the former Conservative Secretary of State for Scotland (1936-1938) and Minister of Agriculture (1932-1936), asserted, 'the crofter has one foot on the croft. He never has intended to stand on it alone'.[101] Fraser Darling paid lip service to ancillary occupations like ghillieing, fishing, weaving, and migratory work, but his foremost concerns were crops and animal husbandry. He abhorred anything that drew crofters away from caring for their land properly.[102]

The evolution Fraser Darling sought to instigate in the Gaelic community was such that it would make them into an alternative culture: a 'greener', more balanced, and cooperative society, which had neither the social stratification nor the capitalism—or competition—that he identified with modern British society. In doing so, he ignored and dismissed what the crofters themselves were asking for: namely better communications, economic stability, croft enlargement, fairer land tenure, and more diversity in occupation choice.[103] Rather paternalistically, Fraser Darling concluded *West Highland Survey* by saying that 'it is unlikely that the designation of an executive commission for rehabilitation would be an immediately popular move in the Highlands and Islands', but he assured his reader that 'good sincere, imaginative work would gain its own support'.[104] In his plan for solving the Highland problem, Fraser Darling sought an oligarchic authority, led by scientists and the region's traditional social elite, who would enact and adhere to a plan of 'conservation'

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[100] Quoted in Walter Elliot, 'Life in the Highlands', *The Times Weekly Review* (5 May 1955).
[101] Eliot, 'Life in the Highlands'.
[102] Fraser Darling, et al, 'The Agricultural Situation', 224; see also his opinion of the Lewis textile industry: Fraser Darling and Morley, 'Social Situation', 344.
[103] For Fraser Darling's rejection of past policy and opinions see Fraser Darling, et al, 'The Agricultural Situation', 203, 240; Fraser Darling and Morley, 'Social Situation', 321-324, 333-336, 340-346.
[104] Fraser Darling and Morley, 'Social Situation', 363.

that would engineer an idealized society and landscape. It would be in the best interests of the people, even if it was not what they desired.

His vision for a future Highland was based upon what he believed was the history of the Highlands. Such historicism was not new in outsiders' projection of the Highlands.[105] What Fraser Darling envisaged for the Highlands was similar to the radical 'green' tradition of late Victorian Britain, which had older roots itself:

> The greatest value the mass of Highlands land could give to the nation would be as a continuing productive wild land in which perhaps twice as many people could live than are there at present. The very fact of successful growth would be a satisfying thing, helping to keep a forest population happy living there, cropping the wild lands but not mining them as they have been mined. This ecological continuum, nobly bearing its character of wilderness, would yield more to the nation than the subsidized devastation, rendered the more macabre by imposed mechanical industries.... Man-made devastation is no environment for psychological health in a people as a whole. There is nothing unrefined about the wilderness, nothing unmodern or outmoded.[106]

His association of the Highlands with a 'primitive' culture and 'wilderness' landscape was problematic. It set the region and its people apart from the rest of Britain, in opposition to modern culture and its landscape. He criticized modern society, questioning the social worth of industry and capitalism, by refusing to give it a place in Highland rehabilitation. With this utopian view, Fraser Darling was preceded by the 'communally-based rural utopianism' of William Morris and John Ruskin and the emergence of new liberalist thought at the end of the nineteenth century.[107] Like Morris and Ruskin, who 'looked back to what they saw as the harmonious peasant society of Medieval England for their alternative to the ills of Victorian culture', and the new liberal tradition, which used biological thought to support its foundation for social reform upon cooperation, Fraser Darling used the natural world and science to propound an ethic and attempt to direct human social evolution.[108]

Ultimately, Fraser Darling's plan for the Highlands' rehabilitation was untenable. Its method of application was anachronistic because it depended upon a traditional type of

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[105] Smout, *A Century of the Scottish People*, 74; Cameron, 'The Scottish Highlands as a Special Policy Area', *Rural History*, 8 (1997), 196-199; Charles Withers, 'The Historical Creation of the Scottish Highlands', in I.L. Donnachie and C.A. Whatley, eds, *The Manufacture of Scottish History* (London, 1989), 143-156.
[106] Fraser Darling, 'The Ecology of Land Use', 193.
[107] Michael Bunce, *The Countryside Ideal* (London, 1994), 32, 14-22, 32-33.
[108] Ibid, 32; Michael Freeden, *New Liberalism* (Oxford, 1978), 15, 79-80.

leadership that was unpopular and obsolete. While the Hilleary and Taylor Reports tried to find methods of raising the region's level of material prosperity, Fraser Darling's plan sought to shelter and preserve the region and its culture as a model society. The efficiency and equity components of conservation were geared towards the crofters alone—at least on land—and the aesthetic component was for everyone's betterment. It ignored classic economics, valuing everything in nebulous terms of social well-being and individual happiness that had nothing to do with material wealth. Extensive cattle-rearing, the practice which Fraser Darling placed all his hopes, had been largely discounted as a viable enterprise for the modern Highlands, but this meant little to him because he stubbornly sought a moral, communal economy that placed ecological well-being and equilibrium before material wealth.[109]

[109] Elliot, 'Life in the Highlands'; see also M.L. Ryder, 'Sheep and the Clearances in the Scottish Highlands', *Agricultural History Review*, 16 (1968), 155-158; J. King, 'Hill and Upland Pasture', in Joan Davidson and Richard J. Lloyd, eds, *Conservation and Agriculture*, 107-111.

CHAPTER 5

CONCLUSION

The reason Fraser Darling's biographer, J. Morton Boyd, gives for the failure of *West Highland Survey* is that the Scottish Office's 'orthodoxy clashed with his [Fraser Darling's] non-conformist ideology'. As a result, it 'was not well received by the Scottish Office and, to Frank's great disappointment, was disregarded by the Government'.[1] Broadly, this was certainly the case, but the Scottish Office cannot be blamed entirely. The *Survey* was ambitious and its scope and methodology were unprecedented; its subject, the Highland problem, had thus far stubbornly resisted many attempts at solution. Consequently, to convince the government of its validity Fraser Darling had much to prove. It did help that his science was suspect and his personal philosophy interfered with his conclusions. Fraser Darling saw 1949 as a crisis because his scientific peers questioned his work, his first marriage disintegrated, and his great project seemed destined for obscurity. By the early 1950s, his fears seemed confirmed.

West Highland Survey could be seen as a failure because neither its conclusions nor its author featured prominently in subsequent Highland policy. The Commission of Enquiry into Crofting Conditions, or 'Taylor Commission', reporting to the government in 1954, found the *Survey* 'of great value' and praised it as 'by far the most detailed and scientific account of that part of Scotland which has ever been written'.[2] But, the Commission's conclusions and the resulting Crofters (Scotland) Act of 1955 were fundamentally dissimilar to Fraser Darling's plan for solving the Highland problem. The *Survey*'s 'failure', however, was not absolute. Its poor reception by the government overshadowed its important intellectual contribution to ecology, conservation, and environmental philosophy. This dissertation has been as much an analysis of the reasons *West Highland Survey* failed as a practical guide for solving the Highland problem as it has

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[1] J. Morton Boyd, *Fraser Darling in Africa* (Edinburgh, 1992), 5.
[2] Commission of Enquiry into Crofting Conditions, Report (Edinburgh, 1954), 8.

been an intellectual history of one man's attempt to use the science of ecology as a key tool for human social rehabilitation in mid-twentieth century Britain.

In general, *West Highland Survey* was a brilliant success as a 'Domesday Book' of the West Highlands and Islands and, as such, was an invaluable resource for raw data.[3] Its scientific reviewers were unanimous in their praise of its exhaustive detail and description. It was utterly impractical, however, as a guide for solving the Highland problem. Its inutility was a result of Fraser Darling's conclusions, the greatest and most controversial of which was his desire to establish the Gaelic people and their environment as a utopian alternative to modern society. Other attempts to solve the Highland problem in the mid-twentieth century grappled with the problem of how to make crofting an economically viable and competitive livelihood in modern Britain, and in the initial outline of his scheme in 1943, Fraser Darling appeared to have similar objectives. When he argued that an 'adequate and intensified husbandry would serve as a powerful buffer to the West Highlands', however, he was not considering economics.[4] He actually sought to remove the region from competition with the rest of Britain, de-emphasizing economics so it had almost no place.

Though ostensibly *West Highland Survey* illuminated the ecological basis of the Highland problem, its author took this theme much further. Basing his science upon the principles of holistic ecology and cooperative evolutionary theory, Fraser Darling concluded that the Gaels had historically created a society that balanced environment and human needs. In this equilibrium—or climax—state, he believed true social happiness was achieved. Ecology led him to conclude that the Highland problem was a result of deviation from this equilibrium. Solving it, therefore, 'simply' entailed a return to this balance. He valued such a redeemed Gaelic community and Highland region not in quantitative terms but in qualitative terms of happiness and social health of both the Gaels and the rest of

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[3] D.N. McVean, review of *West Highland Survey*, by F. Fraser Darling, *Journal of Ecology*, 44 (1956), 268.

[4] Frank Fraser Darling, 'Memorandum on the West Highland Problem and the Establishment of a Preliminary Sociological Investigation and Agricultural Advisory and Demonstration Centre in the Crofting Areas' (1943), 1, PRO D 4/380 and NAS WRH AF 70/240'.

Britain, implying that the rest of Britain had values to learn from the Gaels in terms of cooperative and ecologically-sound living.[5]

As a result, Fraser Darling's idea for the Highlands' rehabilitation was idealistic, but hardly practical. Unlike either the earlier report of the Scottish Economic Committee (SEC) in 1938 or of the subsequent Taylor Commission in 1954, he did not outline a precise and detailed prescription for the region's rehabilitation. As such, it is difficult to envision exactly how he hoped his ideas would work. The Tennessee Valley Authority (TVA) was clearly his greatest model; he desired a similar structure on a smaller scale in the Highlands. To Tom Johnston, Fraser Darling, and the SEC, hydro-electricity promised to restore the region's vitality. Because such development required extensive regional planning, Fraser Darling hoped Highland land use could be examined in detail and expertly fixed in the process: 'He had a vision of a new age: the high, rain-soaked, torrential land would yield a new wealth through water and gravity at the blast nozzles of turbines, and this would in turn enhance the yield of soils and the prosperity of the people.'[6] Desiring an executive authority to replace the numerous agencies which dealt with Highland affairs, he envisaged this authority instituting a broad range of conservationist policies to return soil fertility. This, in turn, would encourage crofters to return to their interest in agriculture for their subsistence and for their social well-being by bringing back the communal traditions of the crofting township. In the process, out-migration and dependency upon imported food would be broken.

The soil's fertility lay at the heart of *West Highland Survey*. Fraser Darling recommended afforestation, a reduction of sheep numbers, an increase in cattle, and careful regulation and aid in agriculture to restore and sustain soil fertility. Though such measures might take generations to accomplish their task, he was optimistic that with the inducement of ecological recovery, social and economic health would follow. He came to these conclusions as an extension of his animal behavioural studies because he refused to view

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[5] Fraser Darling, 'The Ecology of Land Use' in Frank Fraser Darling, ed, *West Highland Survey: An Essay in Human Ecology* (Oxford, 1955), 193.
[6] Boyd, *Fraser Darling's Islands* (Edinburgh, 1986), 193.

humans as anything more than animals regulated by nature's laws. To an American audience in 1951, he wrote, 'I am merely a biologist whose main interest is ecology and animal behaviour in relation to conservation, but during the last seventeen years I have been applying the methods of ecology to studying the life of the West Highland people among whom I have lived...'.[7] Conservation, as a branch of ecology, was the tool with which human problems could be solved just as it solved those of wild plants and animals:

> The underlying principle in conservation today is to study the complexity of the habitat, the wholeness of the environment, and the relations of the animals within it in time as in space.... The social life of the animal is now recognized as being an important part of its environment. Conservation in this sense is closely associated with the pressures between human communities and their environment and between themselves.[8]

He prided himself for presenting 'the approach of a naturalist in conservation as contrasted with the economic attitude of mind'.[9]

Superficially, *West Highland Survey* appears to differ little from the two other substantial surveys of the Highlands and Islands in the mid-twentieth century. Like Fraser Darling's, both the Hilleary and Taylor reports recognized that the Highland problem had roots in an eighteenth-century clash between traditional Highland culture and the more centralized British state.[10] All three highlighted that the crofting system was having special trouble competing economically with the rest of Britain, and they accorded this to a host of reasons, including geography, the crofting system, and the nature of the money market. They all had high praise for the region and its people, conferring to the crofters a special place in the national ethos and viewing the region's rehabilitation as a national necessity. For instance, the Taylor Commission argued 'that in the national interest the maintenance of these communities is desirable, because they embody a free and independent way of life which in a civilisation predominantly urban and industrial in character is worth preserving

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[7] Fraser Darling, 'The Ecological Approach to the Social Sciences', *American Scientist*, 39 (1951), 245.
[8] Ibid.
[9] Ibid, 246.
[10] SEC, *The Highlands and Islands of Scotland: A Review of the Conditions with Recommendations for Improvement* (Edinburgh, 1938), 9-21; Commission of Enquiry into Crofting Conditions, Report (Edinburgh, 1954).

for its own intrinsic value'.[11] They all saw the Highlands as an essential component of Scottish identity for their unique and rural traditions in the face of a very different modern world.

And yet, the Hilleary and Taylor reports differed from *West Highland Survey* fundamentally because both aimed to improve the quality of life through measures that sought to enhance economic prosperity and both measured success in terms of employment rates, profits, and markets.[12] Fraser Darling, on the other hand, desired the removal of the Highland region and its population from the competition of the modern economy. The profit accrued from hydro-electricity, forestry, livestock, limited tourism, and fishing would sustain the population, removing the region's need to compete economically with the rest of Britain and, thus, buffering it from the ravages of industrialism and capitalism.

Considering the durability of the Highland problem in the face of numerous concerted efforts to solve it, Fraser Darling's conclusions came under close scrutiny. A particularly strident critic of the *Survey*'s recommendations, former Secretary of State for Scotland Walter Elliot pointed out one of its glaring inconsistencies:

> The conclusion of Dr. Fraser Darling is that the basis of future prosperity for the crofting areas must lie in the production potentials of land and sea rather than in what he calls 'artificially stimulated imported industries.' But then, according to him, it is exactly the maximum exploitation of the potentials of land and sea which has produced devastation.[13]

Of course, Elliot failed to see that there existed no place for 'exploitation' and capitalist notions of land use in Fraser Darling's vision of a rehabilitated West Highlands and Islands. But, when the inhabitants' own voices were heard so rarely in the pages of *West Highland Survey* and when a clear plan never materialized, the *Survey* seemed contradictory. The *Survey* was primarily the voice of Fraser Darling, the scientific expert who 'knew best'. It proposed to rewrite Highland policy and objectives in the name of science, but it failed to give a concrete plan. Elliot justly questioned the value of such a radical and untried route: 'Last time it was wrongly done. Are we so very sure then...that our counsellors are right

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[11] Commission of Enquiry, 9; cf. SEC, *The Highlands and Islands of Scotland*, 25.
[12] SEC, *The Highlands and Islands of Scotland*, 28; Commission of Enquiry, 7.
[13] Walter Elliot, 'Life in the Highlands', *The Times Weekly Review* (5 May 1955).

this time? For last time, the views which have proved so disastrous were just as confidently, and as vehemently expressed.'[14]

Fraser Darling's plan for solving the Highland problem promised great investment of money from the government for its application, but it promised neither success of solution nor much hope of any economic return. With Britain's uncertain economic future in the late 1940s and early 1950s it was clearly too risky a venture. In addition, Fraser Darling's proposal of an executive authority was extremely unappealing, as the SEC's similar recommendation had been in 1938, in the face of growing concern for Soviet authoritarianism, not to mention the recently defeated threat of fascism.[15] Any hint of restricting democracy, therefore, was eyed with suspicion. In addition, such an authority clearly threatened established interests in the region, such as the Forestry Commission, the Board of Trade, and the Department of Agriculture.[16]

West Highland Survey was not a practical blueprint for Highland rehabilitation, but it was not a failure. From a theoretical standpoint, it was, as Boyd argues, 'a milestone in environmental science in Britain'.[17] It was radically incongruous with any previous attempt of rural planning in Britain as it attempted to resolve a human social problem with science on a spectacular scale. Though its cold reception by the Scottish Office spelled its practical failure, it did not damage Fraser Darling's reputation altogether, for it featured in his subsequent appointment to the Scottish Committee of the Nature Conservancy, to the directorship of the Nature Conservancy's Red Deer Survey, and to a senior lectureship in ecology and conservation at the University of Edinburgh.[18] Greater interest in his work, however, emerged in the United States following his introduction to leading American conservationists in 1949. In the U.S., the ideology and theory behind the *West Highland Survey* was less radical; there, it seemed to belong to a thriving and well-established discussion of social theory and ecological thought. From 1950 onwards, there was a

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[14] Ibid.
[15] Ian Levitt, 'The Creation of the Highlands and Islands Development Board', *Northern Scotland*, 19 (1999), 90.
[16] Ibid, 90-95.
[17] Boyd, *Fraser Darling's Islands*, 209.
[18] Boyd, *Fraser Darling in Africa*, 6.

perceptible shift in Fraser Darling's work and interests from Scotland to the U.S.. He found a more welcoming outlet for his work and ideas there. *West Highland Survey* was a brilliant success across the Atlantic, and it effectively launched Fraser Darling into a successful career as a conservation expert and leader in the emerging environmental movement.

Initially, Fraser Darling had been more interested in the work of U.S. scientists and conservationists than vice versa. The ecological theories of Frederick Clements at the University of Nebraska and W.C. Allee at the University of Chicago had a profound effect upon his conception of ecology and his early formulation of his holistic environmental philosophy of life. As his interests shifted from animal ecology to human ecology, conservation, and, eventually, environmentalism, he was further influenced by American thought. He attributed the best conservationist thought to the U.S., citing not only Theodore Roosevelt and Gifford Pinchot, but Franklin Roosevelt's New Deal. U.S. progress in soil conservation and in integrated rural development, especially the example of the TVA, interested him greatly and became models upon which he based his cure for the Highland problem.[19] Then, as his philosophical and ethical ideas developed, Fraser Darling turned to the U.S. again for models and collaboration, to men like Aldo Leopold and Paul Sears.

West Highland Survey, however, shifted the interest so that Fraser Darling's U.S. models now looked to him for opinions and ideas. After the disappointment of the *Survey*'s reception in Britain, this attention was gratifying and it bolstered his confidence. He found happiness in the U.S. that he could not find at home.[20] By the end of the 1950s, Fraser Darling had in most respects abandoned his British interests for international ones, working under the auspices of Fairfield Osborn and the Conservation Foundation, centred in Washington D.C.. When he was selected to give the Reith Lectures for the BBC in 1969, *The Times* mistook him for an American.[21]

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[19] Fraser Darling, 'The Ecology of Land Use', 193, 359.
[20] Anne Chisholm, *Philosophers of the Earth* (London, 1972), 49.
[21] D.J.B. Copp, Letter to the Editor, *The Times* (10 June 1969).

When Fraser Darling first went to the U.S. in 1949, there already existed much interest in his work in the West Highlands.[22] Boyd attributes the American interest to the *Survey*'s subtitle—'an essay in human ecology'.[23] Human ecology remained the nebulous subject it had been before Fraser Darling attempted to tackle it in his survey. Nevertheless, it continued to be of great interest to biological scientists and social scientists who sought to understand and propound a science of human society. American scientists, in particular, had adopted it in the 1940s and 1950s but were as frustrated as they and their British counterparts had been earlier in the century. Human ecology promised to bridge biology and human society, but it remained as yet beyond anyone's grasp. The American plant ecologist Paul Sears, who like Fraser Darling was convinced that 'a knowledge of the environment was essential to advance human society', called human ecology 'a problem of synthesis'.[24] *West Highland Survey*, therefore, was of great interest because it went beyond theory in human ecology to being a solid attempt of using it for the betterment of humanity.

Through his earlier work in animal ecology Fraser Darling had been known and respected in a small U.S. academic circle prior to his foray into human ecology.[25] It was Julian Huxley, the eminent zoologist and prominent international pundit on conservation and social reform, who brought Fraser Darling the human ecologist and environmental philosopher to the attention of the U.S. in the late 1940s. In 1949, Fraser Darling was invited to the United Nations Educational, Scientific, and Cultural Organization (UNESCO) conference on the conservation of natural resources (UNSCUUR) at Lake Success, New York.[26] As UNESCO's first Director-General (1946-1948), Huxley engineered Fraser Darling's invitation though it created some controversy because Fraser Darling represented

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[22] Fraser Darling, *Pelican in the Wilderness* (London, 1956), 24
[23] Boyd, *Fraser Darling in Africa*, 7.
[24] Robert P. McIntosh, *The Background of Ecology* (Cambridge, 1985), 304-305; 307.
[25] W.C. Allee, 'A Field Study in Animal Behavior', *Ecology*, 19 (1938), 311-312; Nicholas E. Collias, 'Bird Flocks and Facilitation of Breeding', *Ecology*, 19 (1938), 578-579.
[26] Fraser Darling, *Pelican*, 17; for further discussion of the Lake Success conference see Robert Boardman, *International Organization and the Conservation of Nature* (London, 1981), 43, 51.

UNESCO but neither Scotland nor Britain in his role as member of the Nature Conservancy's Scottish division.[27]

The Lake Success conference gave Fraser Darling his first taste of international assignment and recognition. The entire experience thrilled him: 'As UNESCO's man I was a cosmopolitan and my own countrymen seemed a body of folk remote from me, as were their interests.'[28] As a vice-president of the conference, he felt assured and confident. With his new stature he could look down upon Britain and the nation's failure to send a delegate to the conference through comparison with the other nations represented: 'Britain was almost certainly the most backward country in Europe in our understanding of what biological conservation meant....' He expressed surprise at how close his ideas were to American ones: 'I can't help but notice how parallel my own thoughts are running, and how, though I am a pioneer in Britain, I am no more than level and very often a follower to what is being thought out here.'[29] However, considering Fraser Darling had largely used American ecological and conservation models in the formation of his own ideas, this parallelism is not actually surprising.[30]

Fraser Darling's brief trip to the United States in 1949 allowed him to collect his thoughts, rebuild his self-confidence, and return to his work on *West Highland Survey* primed to complete the manuscript even though he was already convinced that the Department of Agriculture for Scotland would not like it: 'I went to America shaken, not as to whether I was right in the conclusions to which I had come through a long period of time, but socially, as how one was to go on living and earning a living in an environment where hard thought and—I thought—well worked out conclusions were considered unreal and unrealistic.'[31] His new friends, especially Sears, Osborn, and William Vogt, reassured his faith. When the Rockefeller Foundation offered him a six-month research fellowship to

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[27] Fraser Darling, *Pelican*, 17; Chisholm, *Philosophers*, 48.
[28] Fraser Darling, *Pelican* , 17.
[29] Fraser Darling, 2 July 1950, American Diary, NLS Acc 11523/4, fo. 6.
[30] See Fraser Darling's praise of American ecology and conservation in Fraser Darling, 'Conservation and Ecological Theory', *Journal of Animal Ecology*, 33 (1964), 39-41.
[31] Ibid, 20.

survey U.S. human ecology, he eagerly sought leave from the West Highland Survey.[32] Then in the 1950s when delays to the *Survey*'s publication persisted and his other official duties in Britain slowly failed, his orientation shifted ever more towards the other side of the Atlantic until he accepted Osborn's offer to join the Conservation Foundation as a vice-president in 1959.

Fraser Darling's involvements in the United States had an adverse effect upon *West Highland Survey*'s British reception and his reputation at home. Official committee work and his increasing participation in U.S. and international conservation work delayed the completion of the Survey, its report, and its editing for final publication. When he applied for a grant from the Nuffield Foundation, his reliable supporter at the Development Commission, E.H.E. Havelock, was honest in his appraisal of Fraser Darling's work: 'The plain truth is that throughout the period of the survey Darling has been deeply involved in other interests'. He suggested that it had created some of the delays, which were slowing the Survey.[33] Havelock noted that the Department of Agriculture for Scotland was less understanding: 'I think they feel that Darling has been dilatory and has chosen to take action which has bound to result in delays.'[34] Throughout the four years it took to publish *West Highland Survey*, Fraser Darling was frequently abroad, and the editing of the text and compilation of the index were consequently a slow process.[35]

Boyd believes that American enthusiasm for his work gave Fraser Darling essential comfort but drew him away from his British commitments, including the completion of *West Highland Survey*.[36] Appointed director of the red deer survey by the Nature Conservancy in 1953, Fraser Darling had neither the time nor the dedication to carry out the necessary work. His family, his health, and his commitments in the U.S. and Africa

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[32] See Fraser Darling to Department of Agriculture for Scotland, 28 June 1949, North of Scotland College of Agriculture, County Work, Employment of Dr. F. Darling, NAS, WRH AF 70/240.
[33] E.H.E. Havelock to Keith Murray, 9 March 1951, West Highland Survey: Development in Crofting Areas in Western Highlands by F. Fraser Darling, 1955-1972, PRO D 4/1707.
[34] Ibid.
[35] See PRO D 4/1707.
[36] Boyd, *Fraser Darling in Africa*, 7; see also Boyd, Obituary Notice: Sir Frank Fraser Darling, *The Royal Society of Edinburgh Yearbook 1980* (Edinburgh, 1980), 53.

prevented him from doing the work well, and the survey ended sourly with even Parliament questioning its usefulness.[37] After 1957, his contract was terminated. Similarly, the University of Edinburgh dismissed him after a five-year tenure as a lecturer in zoology because he had no time for teaching and little aptitude for academia.[38]

In the 1950s while his Scottish and British career plummeted, Fraser Darling's international reputation skyrocketed. *West Highland Survey* largely instigated and sustained it. Right across the U.S. and through Mexico on his Rockefeller tour, he discussed the prospects of human ecology with leading ecologists, anthropologists, biologists, and conservationists. At the University of Wisconsin at Madison and the University of Chicago, he was flattered by the attention: 'Apparently I am quite a legendary name here, thanks to Leopold, and "the Darling principle" is accepted and so alluded to[;] Allee at Chicago told me "the Darling principle" was the expression used there also. Very flattering.'[39] Unfortunately, we can only speculate on what 'the Darling principle' was, but it definitely suggests that Fraser Darling was held in high esteem by some of the people he admired most, namely Aldo Leopold and Allee.

Fraser Darling is often compared to Leopold and seen as Scotland's and, later, Britain's own equivalent.[40] Certainly, Fraser Darling was adamant in his approval of Leopold's holistic view of ecology and his 'Land Ethic'.[41] Boyd thinks 'Fraser Darling took up the word conservation where Aldo Leopold left off', noting both men's commitment to a community view of the world.[42] His environmental ethic had a distinct resonance of Leopold's. Leopold attacked the American way of 'thinking about decent land-use as solely an economic problem' in a manner similar to Fraser Darling's tirade against modern,

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[37] See Red Deer Survey, 1953-1958, The Nature Conservancy, PRO FT 4/25; Parliamentary Question, PRO FT 3/28.
[38] Lord Michael Swann to Boyd, 9 March 1985, J. Morton Boyd, Frank Fraser Darling Papers, StAUL MS 38449/30.
[39] Fraser Darling, 28 July 1950, American Diary, NLS Acc 11523/4, fo. 45.
[40] Boyd, Obituary Notice, 53-54; T.C. Smout, *The Highlands and the Roots of Green Consciousness*, (Perth, 1991), 20.
[41] Fraser Darling, *Pelican*, 83-88, 99; Fraser Darling, 'Man's Responsibility for the Environment' in F.J. Ebbling, ed, *Biology and Ethics* (London, 1969), 117-122.
[42] Boyd, *Fraser Darling's Islands* (Edinburgh, 1986), 7.

capitalist Britain.[43] His reaction to the transformation of the land in Wisconsin and the American Southwest was comparable to Fraser Darling's in the West Highlands, and there is no doubt that Fraser Darling owed Leopold a great intellectual debt. However, the comparison cannot be taken too far. As Boyd points out, 'Leopold's *A Sand County Almanac* has no exact counterpart in Fraser Darling's writings; it is spread across several'.[44] Fraser Darling was never able to iterate his environmental philosophy in as succinct a manner as Leopold, and ultimately this made his work and his philosophy significantly weaker.

In his journal and book that described his American travels, *Pelican in the Wilderness: A Naturalist's Odyssey in North America* (1956), Fraser Darling continued to theorize on human ecology even though he admitted it still defied definition.[45] He compared Britain to the United States, the West Highlands and Islands to specific American regions, and the Gaels to Amerindians and Appalachian 'hill-billies'.[46] In many aspects, his six-month survey of the U.S. in 1950 and his seven-month survey of Alaska in 1952, conducted with Leopold's son Starker, were similar to the West Highland Survey, but they were grander in scope and more general in detail and conclusion.[47] Across the U.S. and Alaska, Fraser Darling saw the Highland problem replayed: with 'hill-billies' in North Carolina, the Hopi in Arizona, Taos Indians in New Mexico, and 'eskimos' in southern Alaska.[48]

The success Fraser Darling found in the U.S., however, was illusory. In the U.S., he filled a very different niche than he had in Scotland. In Scotland, he attempted to change humans' views of the land and the environment through policy. In contrast, in the U.S., his work was largely divorced from policy and the government. The Conservation Foundation was a non-governmental organization, the objectives of which included environmental conservation, scientific research, and promulgation of environmental awareness.[49] It was the perfect outlet for Fraser Darling's temperament. The U.S. brought him into a working

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[43] Aldo Leopold, *A Sand County Almanac* (Oxford, 1987ed), 224.
[44] Boyd, *Fraser Darling's Islands*, 7.
[45] Fraser Darling, *Pelican*, 25.
[46] Ibid, 18.
[47] A. Starker Leopold and Fraser Darling, *Wildlife in Alaska* (New York, 1953).
[48] Fraser Darling, *Pelican* , 218, 167-169, 185, 268.
[49] For more information on the Conservation Foundation see Boardman, *International Organization*, 39, 112.

environment of like-minded people that was very unlike his relationship with the Department of Agriculture for Scotland and with the other members on the National Parks (Scotland) Committee. Farther removed from the making of legislative policy in the Conservation Foundation, there were fewer opportunities for personality clash and political disappointment; instead, he could focus on his strengths: the popularization of ecology, conservation, and his environmental philosophy.

It is, therefore, unsurprising that Fraser Darling's subsequent attempts to influence policy all followed the precedent set by *West Highland Survey*. In Northern Rhodesia (1956-1957), Kenya (1956), and the Sudan (1961), he was commissioned to survey game policy through the Conservation Foundation and the colonial governments. His conclusions were reminiscent of *West Highland Survey*: 'What he had pondered in the lives of deer and caribou, he now applied to lechwe and wildebeest; what he saw of the human condition among crofters in Scotland, Hopi Indians in Arizona and Eskimos in Alaska prepared him for encounters with the Bantu, Masai, Dinkas and many other tribes'.[50] The governments' responses to his conclusions were similar to Scotland's a decade earlier, and the situations were not helped when he was very late in finishing his reports.[51] In Africa, Fraser Darling criticized the hard work and conclusions of specialists and earned their dislike.[52] According to W.L. Astle, a game manager with whom he worked in Northern Rhodesia, his

> recommendations were very general, contained nothing original, and made no suggestions on how they could be implemented.... [H]e appeared to have believed anything told to him, to have questioned little and understood less.... His recommendations were not new to the Government, and were little more than idle platitudes.[53]

His book, *Wildlife in an African Territory* (1960), was a disaster, and his publisher considered him 'a rather tiresome author' after declaring the book 'wretched'.[54]

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[50] Boyd, *Fraser Darling in Africa*, 289.
[51] Ibid, 292-293, 297.
[52] Ibid, 289.
[53] W.L. Astle, *A History of Wildlife Conservation and Management in the Mid-Luanga Valley, Zambia* (Bristol, 1999), 91.
[54] J.R.B. Brett-Smith, 24 March 1961; P.J. Sisam, 16 June 1959, Wild Life in an African Territory, OUP 7591.

In both Africa and Scotland, critics of Fraser Darling consider him the architect of an oppressive and 'authoritarian' conservation bureaucracy that places the questionable rights of plants, animals, and ecosystems above human needs, especially those of African villagers and crofters.[55] In reality, he probably deserves neither the blame nor the credit for contemporary conservation's infrastructure. Astle admits that Fraser Darling was considered a nuisance and essentially ignored in Africa, and as the history of the West Highland Survey attests, the situation in Scotland was basically similar.[56] Still, the anti-conservationist Ian Mitchell argues differently: 'Darling was appointed Director of the West Highland Survey, which launched him into the career of bureaucratic authoritarianism which has had such a profound effect on the modern Highlands.'[57] Though Fraser Darling recommended authoritarian conservation in *West Highland Survey*, Mitchell ignores the fact that it was with the crofters' welfare foremost in mind. Furthermore, it has been demonstrated that Fraser Darling's recommendations were largely ignored. In the first decades of the Nature Conservancy, his influence was limited especially after his disappointment of not being chosen as the Scottish director, the fiasco of the red deer survey, and a bitter misunderstanding at the General Assembly of the International Union for Conservation of Nature and Natural Resources (IUCN) in Warsaw.[58] It is, therefore, doubtful that he had significant impact on the early foundation of Scottish conservation policy.

Ultimately, Fraser Darling's positive contribution to what had become the early environmental movement was neither scientific nor political: it was in his environmental philosophy and his ability to popularize and garner attention for environmental concerns that were enduring. Though his environmental ideas could be seen in his scientific publications in the 1930s and his popular books and articles of the 1940s, it was in *West*

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[55] Astle, *Wildlife Conservation and Management,* 89-93; Ian Mitchell, *Isles of the West* (Edinburgh, 2001ed), 23-24, 227-228.
[56] Astle, *Wildlife Conservation and Management,* 89-93.
[57] Mitchell, *Isles of the West,* 23.
[58] Smout, *Roots of Green Consciousness,* 22-23; Red Deer Survey, 1953-1958, The Nature Conservancy, PRO FT 4/25; Max Nicholson File, J. Morton Boyd Papers, StAUL MS 38449/32.

Highland Survey that they came together. The *Survey* was Fraser Darling's most coherent articulation of his philosophy, and, more importantly, it was an attempt to apply it in real terms—to understand and solve the Highland problem. In the *Survey*, he took a hard line against modern British society and capitalism. In the U.S. and Africa, he was equally critical of western society and economics, and he similarly called upon a revision of human priorities from economic profit and competition towards cooperation with nature and the restoration of ecological equilibria.[59]

The journalist Ann Chisholm credits Fraser Darling with introducing the word 'ecology' into Britain's popular culture.[60] In 1969 she wrote an article about him when he was about to give the Reith Lectures on the BBC, but not knowing what ecology was, she read a draft of his lectures. Her reaction is worth quoting:

> Suddenly, I discovered a new subject. Ecology, it appeared, was the science which could interpret the fragments of evidence that told us something was wrong with the world.... Ecology, it seemed to me...was an especially enjoyable abstract idea. What it meant was—everything links up. What interested me... was not the actual content of ecology but the ecological message. Here, it seemed, was a new morality and a strategy for human survival rolled into one.[61]

Chisholm was so impressed with ecology that she decided to write a book on it. Her book, *Philosophers of the Earth* (1972), is useful because it is an attempt to understand ecology, conservation, and environmentalism by a layperson in a period when the public was only just learning about such concepts. She recognized that ecologists had an important social role:

> They could, it seemed, offer a general philosophy of life that explained man's dependence upon, and responsibility towards, nature. They were trained in a specialized field of study that could instruct us in how the whole natural system worked, tell us what we were doing wrong, and advise us how to put it right.[62]

This assessment of ecology was exactly what Fraser Darling had long desired, and it was in *West Highland Survey* that he attempted to do just this, using ecology to propound a philosophy of life and advise the government on how to improve humanity along ecological principles.

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[59] Fraser Darling, *Wilderness and Plenty*, 57-58.
[60] Ibid, xi, 39.
[61] Ibid, xi.
[62] Ibid, xii.

For Chisholm, ecology came 'like a religious revelation'. It made her realize 'that ultimately ecology, if it is to work, must involve a radical change in our economic and social priorities. It means that ecological sanity must replace profit and productivity as our goal'.[63] It was thus in the late 1960s and 1970s that Fraser Darling found the most receptive audience for his ecological ideas. Growing concern over pollution, the disappearing countryside, and nuclear testing, coupled with the discovery of 'ecology', helped herald the 'environmental movement' in Britain with Fraser Darling at its lead. The Reith Lectures made him an overnight sensation, and he received a knighthood in 1971. He had come a long way from the disappointment of his failed attempt to direct Highland policy twenty years earlier.

Popularity for Fraser Darling's philosophy and vision of ecology during the environmental movement, did not, however, suddenly validate the conclusions of *West Highland Survey*. Not only had the economic and political circumstances made the *Survey* untenable in the late 1940s and early 1950s, Fraser Darling's unclear rehabilitative plan, his romanticism, and his uncertain ecology still undermined his conclusions. At the height of his and ecology's popularity in the 1970s, his ecology and his philosophy were still suspect, but masked by their popular appeal.

People expected ecology to fix the environmental crisis it predicted. Ironically, this was partly due to their continued faith in science and progress despite the revelation that science and technology could have adverse effects upon life and the environment. People were also persuaded by the confidence of leading ecological and conservationist pundits like Fraser Darling, who as 'experts' presented their theories like facts to the public. Fraser Darling's expertise was particularly attractive because it was neither Oxbridge nor Whitehall. His voice had resonance because he was an outsider and seemed more like the people to whom he spoke. He made ecology accessible and understandable to everyone and showed that it had serious implications in all aspects of life.

What was not as clear, however, was that ecology was not a quantifiable and exact science, especially in the holistic sense that it needed if it were to uphold a philosophy of life

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[63] Chisholm, *Philosophers*, 198-199.

like Fraser Darling's. The holistic ecology of Clements and cooperationist theories of Kropotkin and Allee, strengthened by the work of Eugene Odum (1969), created an ideal to which Fraser Darling aspired and which he imparted to the public. It argued that humans were part of a greater community of nature and that such a community naturally tended towards stability and equilibrium through cooperation of the life of which it was composed. Modern humans' intervention, however, threatened and overturned the stability, directing the community towards disaster. The West Highlands was always one of Fraser Darling's favourite examples of this. He saw the Highland problem as a result of human interference with the region's ecological equilibrium, and he made famous the notion of the Highlands as a man-made 'wet desert'.[64] By making an example of it and pointing towards its hope for rehabilitation, he intended to show the social value of ecology. This was, to him, human ecology, as distinct from animal or plant ecology because it had a clear social function.

However, even as Fraser Darling was conducting the West Highland Survey, and certainly by the 1960s and 1970s, the principles of ecology were not so straightforward. After the Second World War, organismal ecology was largely replaced by a more mechanistic interpretation based upon mathematics and physics.[65] The organismal analogy, however, was important to Fraser Darling's vision of ecology and to the formation of his philosophy. Ecology was becoming more reductionist while Fraser Darling's views were growing more holistic. Then there was the re-emergence of the theory of 'chaotic ecology'.[66] Since the work of Henry Gleason in the 1920s there had been a movement within ecology that denied that nature was necessarily ordered and predictable but was, rather, unpredictable and arbitrary; Gleason wrote in 1926, 'Each...species of plant is a law unto itself'.[67] Concurrent with the development of 'chaos theory' in the 1960s, Gleason's theories re-emerged just when environmentalists depended most upon Clementsian ecology. By the

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[64] Fraser Darling, *Pelican*, 353; see also Smout, *Nature Contested* (Edinburgh, 2000), 117, 185; Fraser Darling, *Natural History in the Highlands and Islands* (London, 1947), 258.
[65] Gregg Mitman, *The State of Nature* (Chicago, 1992), 140-141; see also Donald Worster, *Nature's Economy* (Cambridge, 1994ed), 306-315.
[66] See Worster, 'Organic, Economic, and Chaotic Ecology', printed in Carolyn Merchant, ed, *Major Problems in American Environmental History* (Lexington, MA, 1993), 465-479.
[67] Quoted in ibid, 475.

early 1980s, the ecologists S.T.A. Pickett and P.S. White could conclude that 'equilibrium landscapes would...seem to be the exception, rather than the rule'.[68] Fraser Darling's cure for the Highland problem was conservation to restore the natural balance between the human population and the environment. If no such equilibrium had ever existed, what was there to restore? A different theory of ecology, therefore, had undermined his prescription.

But even the history of ecology is not so straightforward. The ecologists Robert P. McIntosh and Michael Barbour attempt to dispel historians' dualistic image of Clementsian and Gleasonian ecology.[69] Rather than a sudden paradigm shift, they see a gradual reassessment which favours Gleasonian theory but not to the utter exclusion of Clementsian theory. McIntosh also argues that Gleasonian ecology is not as harshly individualistic and unordered as some historians describe it. Neo-Gleasonian ecology does not deny patterns or models, but it refuses to accept the simplicity of either the organism metaphor or equilibrium. Clementsian ecology provided a nice metaphor and a simple pattern to life, but it failed to explain reality adequately. Ecologists realized that nature tended to be dynamic, so they began studying 'disturbance as the key to community development' rather than stability.[70] The resulting 'new' ecology is more complex and, for the non-ecologist, more confusing than Clementsian ecology, but it is better supported by scientific evidence.

The new ecology might explain reality better, but it does not provide easy answers like Clementsian ecology; nor is it as sure of itself. As such, it is not as useful to social scientists and philosophers. J. Rodman believes it is too uncertain to depend upon: 'Ecology itself is not a clear and settled disciplinary paradigm even in biology, but something developing, so that social scientists who construct their alternative paradigms on the basis of "what 'ecology' is"...risk building upon shifting sands.'[71] The economist and environmentalist Kenneth Boulding told Chisholm that he did not trust ecology: 'Ecology is

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[68] S.T.A. Pickett and P.S. White, excerpt from *The Ecology of Natural Disturbance and Patch Dynamics* (1985), printed in Merchant, ed, *Major Problems*, 460.
[69] McIntosh, 'The Myth of Community as Organism', *Perspectives in Biology and Medicine*, 41 (1998), 426-439 (ejournal); Michael G. Barbour, 'Ecological Fragmentation in the Fifties', in William Cronon, ed, *Uncommon Ground* (New York, 1995), 233-255.
[70] McIntosh, 'Myth of Community as Organism', (ejournal), 3.
[71] Quoted in McIntosh, *Background*, 318.

still a very soft science. It doesn't have much predictive power. It's a set of insights rather than a set of quantitative parameters.'[72] Ecology could potentially bridge the gap between the physical and social sciences; however, as it crossed the line into human studies, objectivity blurred. Fraser Darling had a particular problem with this as the *West Highland Survey* attests. He was not alone; as McIntosh explains, 'The conflict between the image of science as objective and value-free and that of ecology as intrinsically value-laden and a guide to ethics for humans, animals, and even trees is difficult to reconcile'.[73]

Fraser Darling's temperament and ecological ideas were ill-suited for the academic and government work to which he had aspired in Britain in the 1940s and 1950s. Even today, mention of his name can evoke strong reactions of adoration and hatred. His stubbornness and sincere faith in himself and his ecology brought him both heartache and brilliant success, but it was within the realm of environmental philosophy and in the United States that he was most successful, not in ecology, politics, or Scotland as he had once hoped. Though the *West Highland Survey* could not solve the Highland problem, it provided a crucial alternative to viewing the Highland problem and its achievements were recognized in future government enquiries; it solidified Fraser Darling's reputation abroad; and it contributed to the diversity of British environmental thinking.

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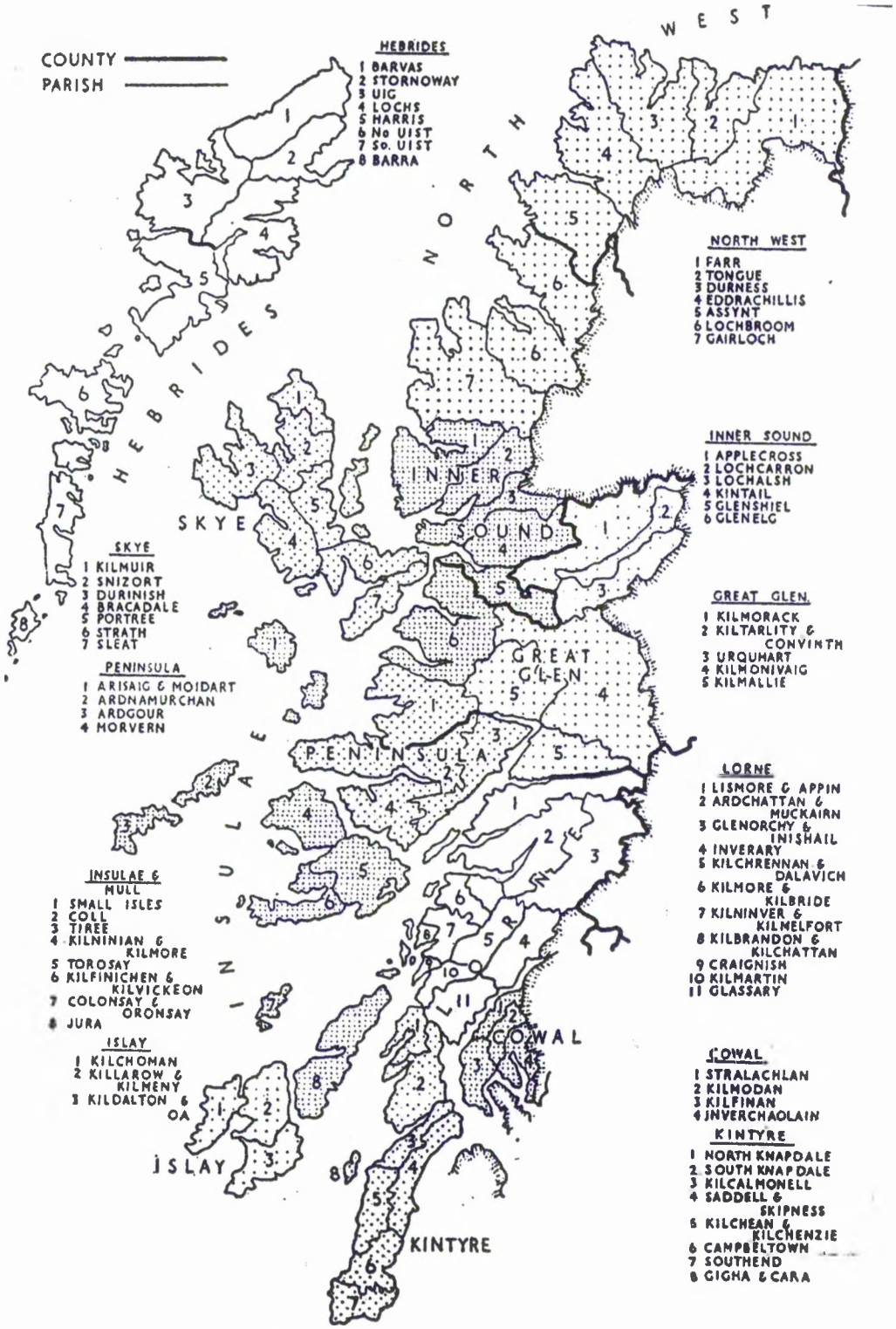
[72] Quoted in Chisholm, 28, 38; see also K.S. Shrader-Frechette and E.D. McCoy, *Method in Ecology* (Cambridge, 1993), 3-6.
[73] McIntosh, *Background*, 308.

APPENDIX

Map of Arbitrary Provinces included in the West Highland Survey[1]



[1] Frank Fraser Darling, 'Relief, Land Forms, Vegetation and Communications', in Frank Fraser Darling, ed, *West Highland Survey: An Essay in Human Ecology* (London, 1955), 17.

BIBLIOGRAPHY

Manuscript Sources

National Archives of Scotland, West Register House (NAS WRH)
- Highlands and Islands: 'A New Deal for the Highlands' (DD 15/3/4)
- North of North of Scotland College of Agriculture, County Work, Employment of Dr. F. Darling (AF 70/240)
- West Highland Survey, Preparation of Final Report (AF 70/241)
- West Highland Survey Reports, National Archives of Scotland (AF 70/242)

National Library of Scotland (NLS)
- Sir Frank Fraser Darling, Journals, Manuscripts, and Papers (Acc 11523/1-9)
  - Manuscript, 1948, Chapters 1 to 4 of a work on 'Agricultural Principles' (Acc 11523/9)
  - Manuscript of USA and Mexico Diary, 23 June – 22 December 1950 (Acc 11523/4)
  - Report, 1951, of an 'Account of Journeys made in the US and Mexico in the Course of a Rockefeller Special Fellowship', June-December 1950 (Acc 11523/8)

Oxford University Press Archives (OUP)
- Dr. F. Fraser-Darling: A Herd of Red Deer, Clarendon Press (357311)
- Naturalist on Rona, Clarendon Press (803648)
- West Highland Survey, Clarendon Press (827202)
- Wild Life in an African Territory, Clarendon Press (7591)

Public Records Office (PRO)
- National Parks Scotland (HLG 92/50)
- National Parks, Scotland, General Papers, 1945-1960 (227/1206)
- The Nature Conservancy, Origin, History, and General Information (FT 3/1)
- Parliamentary Question, 15 Dec 1958 (FT 3/28)
- Proposal for Survey of Marginality in Scottish Agriculture, 1944 (D 4/238)
- Red Deer Survey, 1952-1959 (FT 4/25)
- West Highland Survey by F. Fraser Darling, 1944-1946 (D 4/380)
- West Highland Survey by F. Fraser Darling, 1946-1952 (D 4/752)
- West Highland Survey: Development in Crofting Areas in Western Highlands by F. Fraser Darling, 1955-1972 (D 4/1707)

St. Andrews University Library (StAUL)
- J. Morton Boyd, Frank Fraser Darling Papers (MS 38449/26-34)

Woodson Research Center, Rice University (WRC)
- Julian S. Huxley, Papers (MS 50)

Printed Sources

'7-Year Western Highlands Survey Stays a Secret', *News Chronicle* (5 January 1952).

Allee, W.C., Review of *Bird Flocks and the Breeding Cycle*, by F. Fraser Darling, *Ecology*, 19 (1938), 311-312.

Allee, W.C., Review of *A Naturalist on Rona*, by F. Fraser Darling, *Ecology*, 21 (1940), 269.

Allee, W.C., A.E. Emerson, O. Park, et al, *Principles of Animal Ecology* (Philadelphia, 1949).

Buechner, Helmut K., Review of *Pelican in the Wilderness*, by F. Fraser Darling, *Ecology*, 37 (1956), 861-862.

Caie, John M., 'Agriculture and the State' (Abstract of Lecture), *Proceedings of the Royal Philosophical Society of Glasgow*, 67 (1942), 106-107.

'A Call to the Highland Lairds', *North British Agriculturalist and Farming News* (21 January 1944).

Campbell, John Lorne, Review of *Island Farm*, by F. Fraser Darling, *The New Alliance*, 6 (1944), 10.

Campbell, John Lorne, Letter to the Editor, *The Scotsman* (25 January 1944).

Campbell, John Lorne, *The Oban Times* (28 August 1944).

Campbell, John Lorne, *The Scotsman* (9 December 1944).

Campbell, John Lorne, Correspondence: 'Agricultural Prices', *The Oban Times* (9 December 1944).

Campbell, John Lorne, Letter to the Editor: 'Scots Fisheries: Closing the Minch to Trawlers', *The Scotsman* (28 December 1944).

[Campbell, John Lorne], 'A Devastated Terrain', Review of *West Highland Survey*, by F. Fraser Darling, *Times Literary Supplement* (6 May 1955).

Collias, Nicholas E., Review of *Bird Flocks and Breeding Cycles*, by F. Fraser Darling, *Ecology*, 19 (1938), 578-579.

Collier, Adam, *The Crofting Problem* (Cambridge, 1953).

Commission of Enquiry into Crofting Conditions [Taylor Commission], Report (Edinburgh, 1954).

Copp, D.J.B., Letter to the Editor, *The Times* (10 June 1969).

'Crofting Anachronism', *Glasgow Herald* (2 parts; 8-9 April 1955).

'Devastation in the West Highlands: Social Study Shows Way to Rehabilitation', *Scotsman* (2 parts; 7-8 April 1955).

Eliot, Walter, 'The Lone Shieling: Life and Livelihood in the West Highlands', *The Times* (27 April 1955).

Eliot, Walter, 'Life in the Highlands', Review of *West Highland Survey*, by F. Fraser Darling, *The Times Weekly Review* (5 May 1955).

Elton, Charles, Review of *A Herd of Red Deer*, by F. Fraser Darling, *Journal of Animal Ecology*, 7 (1938), 400-401.

Elton, Charles, Review of *A Naturalist on Rona*, F. Fraser Darling, *Journal of Animal Ecology*, 8 (1939), 390-391.

Elton, Charles, Review of *Island Years*, by F. Fraser Darling, *Journal of Animal Ecology*, 10 (1941), 362.

Elton, Charles, Review of *Wild Life in Britain*, by F. Fraser Darling, *Journal of Animal Ecology*, 12 (1943), 216-217.

Elton, Charles, *Animal Ecology* (Chicago, 2001ed).

'Event of the Week—A Book', *Stornoway Gazette* (5 April 1955).

Fleure, H.J., Review of *West Highland Survey*, by F. Fraser Darling, *Man*, 55 (1955), 31-32.

Fraser Darling, Frank, *A Herd of Red Deer* (London, 1941ed).

Fraser Darling, Frank, Supplement: 'Habits of Wild Goats in Scotland', *Journal of Animal Ecology*, 6 (1937), 15-22.

Fraser Darling, Frank, *Wild Country* (Cambridge, 1938).

Fraser Darling, Frank, *A Naturalist on Rona* (London, 1939).

Fraser Darling, Frank, *The Seasons and the Farmer* (Cambridge, 1939).

Fraser Darling, Frank, *Island Years* (London, 1940).

Fraser Darling, Frank, *The Story of Scotland* (London, 1942).

Fraser Darling, Frank, 'Natural Wealth Not Fully Exploited', *Glasgow Herald* (6 January 1943).

Fraser Darling, Frank, *Island Farm* (London, 1944).

Fraser Darling, Frank, 'Farming the Forgotten Isles', *Farmers' Weekly* (7 January 1944).

Fraser Darling, Frank, By Special Correspondent: 'The Highland Problem V: Rehabilitation and the Human Factor', *Glasgow Herald* (30 December 1944).

Fraser Darling, Frank, *Crofting Agriculture* (Edinburgh, 1945).

Fraser Darling, Frank, 'The History of a Social Question', *Glasgow Herald* (11 July 1945).

Fraser Darling, Frank, 'Work of West Highland Survey', *Glasgow Herald* (12 July 1945).

Fraser Darling, Frank, 'Agriculture, Forestry and Fishing', *Glasgow Herald* (13 July 1945).

Fraser Darling, Frank, 'Depopulation of the Highlands and Islands', *Glasgow Herald* (21 August 1946).

Fraser Darling, Frank, *Natural History in the Highlands and Islands* (London, 1947).

Fraser Darling, Frank, Review of *Our Plundered Planet*, by Fairfield Osborn, *Journal of Animal Ecology*, 17 (1948), 262.

Fraser Darling, Frank, By Special Correspondent: 'Last Chances on Road to the Isles', *Glasgow Herald* (25 December 1947).

Fraser Darling, Frank, By Special Correspondent: 'New Life for Glens and Straths', *Glasgow Herald* (26 December 1947).

Fraser Darling, Frank, By Special Correspondent: 'Industrial "Empire" Visualised in the Highlands', *Glasgow Herald* (17 August 1948).

Fraser Darling, Frank, By Special Correspondent: 'Filling West of Scotland's Empty Spaces', *The Scotsman* (13 November 1948).

Fraser Darling, Frank, 'Agriculture in the Highlands and Islands of Scotland, I: The Highlands', *British Agricultural Bulletin*, 2 (1949), 279-286.

Fraser Darling, Frank, 'History of the Scottish Forests', *Scottish Geographical Magazine*, 69 (1949), 123-137.

Fraser Darling, Frank, *West Highland Survey Reports*, Typescript (1950).

Fraser Darling, Frank, 'The Ecological Approach to the Social Sciences', *American Scientist*, 39 (1951), 244-254.

Fraser Darling, Frank, 'Social Behavior and Survival', *The Auk*, 69 (1952), 183-191.

Fraser Darling, Frank, ed, *West Highland Survey: An Essay in Human Ecology* (London, 1955).

Fraser Darling, Frank, 'Man's Ecological Dominance through Domesticated Animals on Wild Lands', in William L. Thomas, Jr, ed, *Man's Role in Changing the Face of the Earth* (2 vols; Chicago, 1956), ii. 778-787.

Fraser Darling, Frank, *Pelican in the Wilderness: A Naturalist's Odyssey in North America* (London, 1956).

Fraser Darling, Frank, *Wild Life in an African Territory* (London, 1960).

Fraser Darling, Frank, 'Conservation and Ecological Theory', *Journal of Animal Ecology*, 33 (1964), 39-45.

Fraser Darling, Frank, 'Wild-Life Conservation: the Ethical and Technical Problems', ([Washington D.C.], 1964).

Fraser Darling, Frank, 'A Wider Environment of Ecology and Conservation', *Daedalus*, 96 (1967), 1003-1119.

Fraser Darling, Frank, 'Ecology of Land Use in the Highlands and Islands', in Derick S. Thomson and Ian Grimble, eds, *The Future of the Highlands* (London, 1968), 29-55.

Fraser Darling, Frank, 'Man's Responsibility for the Environment', in F.J. Ebbling, ed, *Biology and Ethics* (London, 1969), 117-122.

Fraser Darling, Frank, *Wilderness and Plenty* (London, 1970).

Fraser Darling, Frank, 'Future Environments: A Reflective View of the Background', in *The Environmental Future: Proceedings of the first International Conference on Environmental Future, held in Finland from 27 June to 3 July 1971* (London, 1972), 3-13.

Fraser Darling, Frank and J. Morton Boyd, *The Highlands and Islands* (London, 1964).

Fraser Darling, Frank and Raymond F. Dasman, 'The Ecosystem View of Human Society', *Impact of Science on Society*, 19 (1969), 109-121.

Geddes, Patrick and J. Arthur Thomson, *Evolution* (London, 1918ed).

Godwin, H., Review of *Pelican in the Wilderness*, by F. Fraser Darling, *Journal of Ecology*, 44 (1956), 618-619.

Gordon, W., Letter to the Editor, *North of Britain Agriculturalist and Farming News* (18 February 1944).

Gunn, Neil M., 'Future of the Highland-Crofting Township', Review of *West Highland Survey*, by F. Fraser Darling, *The Manchester Guardian Weekly* (14 April 1955).

Hall, A. Daniel, *Reconstruction and the Land: An Approach to Farming in the National Interest* (London, 1941).

Hance, William A., Review: *West Highland Survey, Geographical Review*, 46 (1956), 118-120.

'Human Problems of the Scottish Highlands', *Nature*, 168 (1951), 191-193.

Huxley, Julian S., *TVA:Adventure in Planning* (Cheam, Surrey, c. 1943).

Huxley, Julian S., *Memories* (2 vols; London, 1970).

Johnston, Thomas, *Our Scots Noble Families* (Glasgow, 1919).

Johnston, Thomas, *Memories* (London, 1952).

Leopold, A. Starker and F. Fraser Darling, *Wildlife in Alaska: An Ecological Reconnaissance* (New York, 1953).

Leopold, Aldo, *A Sand County Almanac* (Oxford, 1987ed).

J.D.M., Review of *Bird Flocks and the Breeding Cycle*, by F. Fraser Darling, *Nature*, 142 (1938), 595.

McVean, D.N., Review of *West Highland Survey*, by F. Fraser Darling, *Journal of Ecology*, 44 (1956), 266-268.

Moore, Benjamin, 'The Scope of Ecology', *Ecology*, 1 (1920) 1, 3-5.

'Mystery of the Missing Survey', *Stornoway Gazette* (21 December 1951).

'No Immediate Publication', *Glasgow Herald* (12 January 1952).

Noble, T. Fraser, Review of *West Highland Survey*, by F. Fraser Darling, *Population Studies*, 9 (1956), 190-191.

O'Dell, A.C., Review of *West Highland Survey*, by F. Fraser Darling, *The Scottish Historical Review*, 36 (1957), 70-71.

'Policy for Highlands Under Review', *Glasgow Herald* (28 January 1952).

Power, William, *My Plan for the Highlands.* (Glasgow, c. 1938).

'Publish Highland Survey', *Daily Record* (15 December 1951).

Raglan, Review of *Pelican in the Wilderness*, by F. Fraser Darling, *Man*, 56 (1956), 174.

Reid, Douglas M., *The Problems of the Highlands: A Survey of the Position as it Affects the North-West* (Stirling, c.1943).

Review of *West Highland Survey*, by F. Fraser Darling, *Oban Times* (16 April 1955).

Ritchie, James, *The Influence of Man on Animal Life in Scotland* (Cambridge, 1920).

Russell, William, 'The Answer to 1000 Years of Neglect: A 100-Year Plan for Highland Prosperity', *Aberdeen Press and Journal* (7 April 1955).

J.D.N.S., Review of *The West Highland Survey*, by F. Fraser Darling, *Scottish Geographic Magazine*, 71 (1955), 114-115.

The Scottish Economic Committee, *The Highlands and Islands of Scotland: A Review of the Conditions with Recommendations for Improvement* (Edinburgh, 1938).

Southern, H.N, Review of *Bird Flocks and the Breeding Cycle*, by F. Fraser Darling, *Journal of Animal Ecology*, 7 (1938), 401-402.

Southern, H.N., Review of *Natural History in the Highlands and Islands*, by F. Fraser Darling, *Journal of Animal Ecology*, 18 (1949), 125-126.

Suffern, Canning, Review of *A Herd of Red Deer*, by F. Fraser Darling, *Man*, 38 (1938), 94.

Taylor, Walter P., Review of *Wildlife in an African Territory*, by F. Fraser Darling, *Ecology*, 42 (1961), 845-846.

Toynbee, Arnold J., *A Study of History*, abridgement of volumes I-VI by D.C. Somervell (London, 1946).

'Were Our Fathers Better Fed?', *Stornoway Gazette* (28 June 1955).

'West Highlands a Social Problem: Crofters' "Defeatism"', *Glasgow Herald* (15 January 1944).

'Why is the Highland Survey still so Hush-Hush?', *Sunday Mail* (30 December 1951).

Wynee-Edwards, V.C., Review of *Natural History in the Highlands and Islands*, by F. Fraser Darling, *The Scottish Naturalist*, 60 (1948), 59-61.

Secondary Sources

Allen, David Elliston, *The Naturalist in Britain: A Social History* (Princeton, 1994ed).

Anker, Peder. *Imperial Ecology: Environmental Order in the British Empire, 1895-1945* (Cambridge, MA, 2001).

Armstrong, A.M. and A.S. Mather, *Land Ownership and Land Use in the Scottish Highlands* (O'Dell Memorial Monograph, no 13; Aberdeen, 1983).

Astle, W.L., *A History of Wildlife Conservation and Management in the Mid-Luangwa Valley,*

Zambia (Bristol, 1999).

Badger, Anthony J., *The New Deal: The Depression Years, 1933-1940* (London, 1989).

Bangor-Jones, Malcolm, 'Sheep Farming in Sutherland in the Eighteenth Century', *Agricultural History Review*, 50 (2002), 181-202.

Barbour, Michael G., 'Ecological Fragmentation in the Fifties', in William Cronon, ed, *Uncommon Ground* (New York, 1995), 233-255.

Beinart, William and Peter Coates, *Environment and History: The Taming of Nature in the USA and South Africa* (London, 1995).

Bil, Albert, *The Shieling, 1600-1840: The Case of the Central Scottish Highlands* (Edinburgh, 1990).

Birnbacher, Dieter, 'Sind wir für die Natur Verantworlich?', in Dieter Birnbacher, ed, *Ökologie und Ethik* (Stuttgart, 1980), 103-139.

Boardman, Robert, *International Organization and the Conservation of Nature* (London, 1981).

Bocking, Stephen, *Ecologists and Environmental Politics: A History of Contemporary Ecology* (New Haven, 1985).

Bocking, Stephen, 'Conserving Nature and Building Science: British Ecologists and the Origins of the Nature Conservancy', in Michael Shortland, ed, *Science and Nature: Essays in the History of the Environmental Sciences* (Oxford, 1993), 89-114.

Botkin, Daniel B., *Discordant Harmonies: A New Ecology for the Twenty-First Century* (New York, 1990).

Bowler, Peter J., *The Eclipse of Darwinism: Anti-Darwinian Evolution Theories in the Decades around 1900* (Baltimore, 1983).

Bowler, Peter J., *The Norton History of the Environmental Sciences* (New York, 1992).

Boyd, J. Morton, Obituary Notice: Sir Frank Fraser Darling, *The Royal Society of Edinburgh Year Book 1980* (Edinburgh, 1980), 53-54.

Boyd, J. Morton, Dedication: 'Sir Frank Fraser Darling: Conservationist, Ecologist and Philosopher', in Vance Martin and Mary Inglis, eds, *Wilderness, the Way Ahead* (Forres, 1984), 15-18.

Boyd, J. Morton, 'Edge of the World: Fraser Darling's Islands', in Vance Martin and Mary Inglis, eds, *Wilderness, the Way Ahead* (Forres, 1984), 279-284.

Boyd, J. Morton, *Fraser Darling in Africa: A Rhino in the Whistling Thorn* (Edinburgh, 1992).

Boyd, J. Morton, *Fraser Darling's Islands* (Edinburgh, 1986).

Boyd, J. Morton, 'Nature Conservation', *Proceedings of the Royal Society of Edinburgh B*, 84 (1983), 295-336.

Boyd, J. Morton, *The Song of the Sandpiper: Memoir of a Scottish Naturalist*, (Grantown-on-Spey, 1999).

Bramwell, Anna, *Ecology in the Twentieth Century: A History* (New Haven, 1989).

Brennan, Andrew, *Thinking about Nature: An Investigation of Nature, Value, and Ecology* (London, 1988).

Brown, Callum G., *Religion and Society in Scotland since 1707* (Edinburgh, 1997).

Bryden, John and George Houston, *Agrarian Change in the Scottish Highlands: the Role of the Highlands and Islands Development Board in the Agricultural Economy of the Crofting Counties* (London, 1976).

Buckle, Henry Thomas, *On Scotland and the Scotch Intellect* (Chicago, 1970ed).

Bunce, Michael, *The Countryside Ideal: Anglo-American Images of Landscape* (London, 1994).

Caird, James B., 'The Making of the Scottish Rural Landscape', *Scottish Geographical Magazine*, 80 (1964), 72-80.

Caird, James B., 'Changes in the Highlands and Islands of Scotland 1951-1971', *Geoforum*, 12 (1972), 5-36.

Callicott, J. Baird, 'The Conceptual Foundations of the Land Ethic', in J. Baird Callicott, ed, *Companion to 'A Sand County Almanac'* (Wisconsin, 1987), 186-217.

Callicott, J. Baird, 'From the Balance of Nature to the Flux of Nature: The Land Ethic in a Time of Change', in Richard L. Knight and Suzanne Riedel, eds, *Aldo Leopold and the Ecological Conscience* (New York, 2002), 90-105.

Cameron, A.D., *Go Listen to the Crofters: The Napier Commission and Crofting a Century Ago,* (Stornoway, 1990ed).

Cameron, Ewen A., 'Politics, Ideology, and the Highland Land Issue, 1886 to the 1920s', *The Scottish Historical Review*, 72 (1993), 60-79.

Cameron, Ewen A., 'The Political Influence of Highland Landowners: a Reassessment', *Northern Scotland*, 14 (1994), 27-45.

Cameron, Ewen A., Review of *The Making of the Crofting Community*, by James Hunter, *Scottish Historical Review*, 75 (1996), 262-264.

Cameron, Ewen A., *Land for the People? The British Government and the Scottish Highlands, c. 1880-1925* (East Linton, 1996).

Cameron, Ewen A., 'The Scottish Highlands: From Congested District to Objective One', in T.M. Devine and R.J. Finlay, eds, *Scotland in the Twentieth Century* (Edinburgh, 1996), 153-169.

Cameron, Ewen A., 'The Scottish Highlands as a Special Policy Area, 1886-1965', *Rural History*, 8 (1997), 195-215.

Campbell, John Lorne, *A Very Civil People: Hebridean Folk, History and Tradition* (Edinburgh, 2000).

Cheape, Hugh, 'John Lorne Campbell: scholar, folklorist and farmer', *Review of Scottish Culture*, 10 (1997), 1-4.

Chisholm, Anne, *Philosophers of the Earth* (London, 1972).

Cittadino, Eugene, 'The Failed Promise of Human Ecology', in Michael Shortland, ed, *Science and Nature: Essays in the History of the Environmental Sciences* (Oxford, 1993), 251-283.

Clark, Ronald W., *The Huxleys* (London, 1968).

Coates, Peter, *In Defence of Nature: Conservation and Americans* (Keele, 1993).

Coates, Peter, *Nature: Western Attitudes since Ancient Times* (Oxford, 1998).

Conkin, Paul K., 'Intellectual and Political Roots', in Erwin C. Hargrove and Paul K. Conkin, eds, *TVA: Fifty Years of Grass-Roots Bureaucracy* (Urbana, 1983), 3-34.

Cotgrove, Stephen, *Catastrophe or Cornucopia: The Environment, Politics, and the Future* (Chichester, 1982).

Coull, James R., *Crofter-Fishermen in Norway and Scotland* (O'Dell Memorial Monograph, no 2; Aberdeen, 1971).

The Crofters Commission, *Guide to the Crofting Acts* (Edinburgh, 1976).

Crosby, Alfred W., *Ecological Imperialism: The Biological Expansion of Europe, 900-1900* (Cambridge, 1986).

Cullingworth, J.B., *Environmental Planning, 1939-1969* (4 vols; London, 1975-1980).

Devine, T.M., *Clanship to Crofter's War: The Social Transformation of the Scottish Highlands* (Manchester, 1994).

Devine, T.M., *The Transformation of Rural Scotland: Social Change and the Agrarian Economy, 1660-1815* (Edinburgh, 1994).

Devine, T.M., *The Scottish Nation, 1700-2000* (London, 1999).

Dodgshon, Robert A., *Land and Society in Early Scotland* (Oxford, 1981).

Dodgshon, Robert A., 'The Ecological Basis of Highland Peasant Farming, 1500-1800 A.D.', in Hilary H. Birks, et al, eds, *The Cultural Landscape: Past, Present, and Future* (Cambridge, 1988), 139-151.

Dodgshon, Robert A., 'Farming Practices in the Western Highlands and Islands before Crofting', *Rural History*, 3 (1992), 173-189.

Dodgshon, Robert A., *From Chiefs to Landlords: Social and Economic Change in the Western Highlands and Islands, c. 1493-1820* (Edinburgh, 1998).

Droze, Wilmon H., 'The TVA, 1945-1980: The Power Company', in Erwin C. Hargrove and Paul K. Conkin, eds, Urbana *TVA: Fifty Years of Grass-Roots Bureaucracy* (Chicago, 1983), 66-85.

Dunlap, Thomas R., *Nature and the English Diaspora* (Cambridge, 1999).

Evans, David, *A History of Nature Conservation in Britain* (London, 1997ed).

Fenton, Alexander, *Scottish Country Life* (Edinburgh, 1976).

Fergusson, William, *Scotland, 1689 to the Present* (Edinburgh, 1987ed).

Flinn, Michael W., et al, *Scottish Population History from the 17th Century to the 1930s* (Cambridge, 1977).

Franklin, T. Bedford, *A History of Scottish Farming* (Edinburgh, 1952).

Freeden, Michael, *The New Liberalism: An Ideology of Social Reform* (Oxford, 1978).

Gaziano, Emanuel, 'Ecological Metaphors as Scientific Boundary Work: Innovation and Authority in Interwar Sociology and Biology', *American Journal of Sociology*, 101 (1996), 874-907.

Gibson, John S., *The Thistle and the Crown: A History of the Scottish Office* (Edinburgh, 1985).

Gilchrist, Jim, 'They Changed the Face of the World', *The Scotsman* (10 September 2001).

Gochfeld, Michael, 'Mechanisms and Adaptive Value of Reproductive Sychrony in Colonial Seabirds', in J. Burger, B.L. Olla, and H.E. Wirrn, eds, *Behavior of Marine Mammals: Current Perspectives in Research*, vol. 4: *Marine Birds* (New York, 1980), 207-270.

Gold, John R. and Margaret Gold, *The Crofting System* (Oxford, 1991).

Goodwin, Crauford D., 'The Valley Authority Idea—The Fading of a National Vision', in Erwin C. Hargrove and Paul K. Conkin, eds, *TVA: Fifty Years of Grass-Roots Bureaucracy* (Urbana, 1983), 263-296.

Grantham, Dewey W., 'TVA and the Ambiguity of American Reform', in Erwin C. Hargrove and Paul K. Conkin, eds, *TVA: Fifty Years of Grass-Roots Bureaucracy* (Urbana, 1983), 316-335.

Gray, Malcolm, 'The Abolition of Runrig in the Highlands and Islands', *The Economic History Review*, 2nd series, 5 (1952), 46-57.

Gray, Malcolm, 'Economic Welfare and Money Income in the Highlands, 1750-1850', *Scottish Journal of Political Economy*, 2 (1955), 47-63.

Gray, Malcolm, *The Highland Economy, 1750-1850* (Edinburgh, 1957)

Grove, Richard H., *Green Imperialism: Colonial Expansion, Tropical Island Edens, and the Origins of Environmentalism, 1600-1860* (Cambridge, 1995).

Handley, James E., *Scottish Farming in the Eighteenth Century* (London, 1953).

Handley, James E., *The Agricultural Revolution in Scotland* (Glasgow, 1963).

Harvie, Christopher, 'Labour and Scottish Government: The Age of Tom Johnston', *Bulletin of Scottish Politics*, 2 (1981), 1-20.

Harvie, Christopher, *No Gods, and Precious Few Heroes, Scotland 1914-1980* (London, 1981).

Harvie, Christopher, 'Labour in Scotland During the Second World War', *The Historical Journal*, 26 (1983), 921-944.

Hays, Samuel P., *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920* (Pittsburgh, 1999ed).

Hetherington, Alistair, ed, *Highlands and Islands: A Generation of Progress* (Aberdeen, 1990).

Hunter, James, 'The Gaelic Connection: the Highlands, Ireland, and Nationalism, 1873-1922', *Scottish Historical Review*, 54 (1975), 178-204.

Hunter, James, *The Making of the Crofting Community* (Edinburgh, 1976).

Hunter, James, 'Forgotten Blueprint for the Highlands', *The Weekend Scotsman* (20 October 1984).

Hunter, James, *The Claim of Crofting: the Scottish Highlands and Islands, 1930-1990* (Edinburgh, 1991).

Hunter, James, *On the Other Side of Sorrow: Nature and People in the Scottish Highlands* (Edinburgh, 1995).

Hunter, James, *Last of the Free: A Millennial History of the Highlands and Islands of Scotland* (Edinburgh, 2000).

Hunter, James, *The Making of the Crofting Community* (Edinburgh, 2000ed).

Hutchinson, I.G.C., *Scottish Politics in the Twentieth Century* (New York, 2001).

Hutchinson, Roger, Obituary of John Lorne Campbell of Canna, *The Scotsman* (27 April 1996).

Imper, A.D., 'The North of Scotland', in J.P. Maxton, ed, *Regional Types of British Agriculture* (London, 1936), 251-267.

Innes, John L., 'Landuse Changes in the Scottish Highlands during the 19th Century: The Role of Pasture Degeneration', *Scottish Geographical Magazine*, 99 (1983), 141-149.

Jefferys, Kevin, *The Attlee Governments 1945-1951* (New York, 1992).

Jones, Greta, *Social Darwinism and English Thought: The Interaction between Biological and Social Theory* (Brighton, 1980).

Kaye, Howard L., *The Social Meaning of Modern Biology: From Social Darwinism to Sociobiology* (New Haven, 1986).

Kaye, K.J., 'The Use of the Countryside by the Urban State: Scotland's north-west seaboard and islands', *Scottish Geographical Magazine*, 106 (1990), 89-90.

King, John, 'Hill and Upland Pasture', in Joan Davidson and Richard J. Lloyd, eds, *Conservation and Agriculture* (Chichester, 1977), 95-119.

Kingsland, Sharon E., 'Defining Ecology as a Science', in Leslie A. Real and James H. Brown, eds, *Foundations of Ecology: Classic Papers with Commentaries* (Chicago, 1991), 1-13.

Kingsland, Sharon E., 'Evolution and Debates over Human Progress from Darwin to Sociobiology', *Population and Development Review*, 14 (1988), 167-198.

Kingsland, Sharon E., *Modelling Nature: Episodes in the History of Population Ecology* (Chicago, 1995ed).

Koppes, Clayton R., 'Efficiency, Equity, Esthetics: Shifting Themes in American Conservation', in Donald Worster, ed, *The Ends of the Earth* (Cambridge, 1988), 230-251.

Krech, Shepard, III, *The Ecological Indian: Myth and History* (New York, 2000).

Kuklick, Henrika, *The Savage Within: The Social History of British Anthropology, 1885-1945* (Cambridge, 1991).

Laird, Patrick, Obituary Notice: John Morrison Caie, *Royal Society of Edinburgh Year Book* (Edinburgh, 1952), 5-6.

Leneman, L., *Fit for Heroes? Land Settlement in Scotland after World War One* (Aberdeen, 1989).

Leonard, Patrick L. and Christine Stoakes, 'Landscape and Agricultural Change', in Joan Davidson and Richard J. Lloyd, eds, *Conservation and Agriculture* (Chichester, 1977), 121-143.

Levitt, Ian, 'The Creation of the Highlands and Islands Development Board', *Northern Scotland*, 19 (1999), 85-105.

Lindsay, J.M., 'Forestry and Agriculture in the Scottish Highlands 1700-1850: A Problem in Estate Management', *Agricultural History Review*, 25 (1977), 23-36.

Lloyd, Richard J. and Gerald P. Wibberley, 'Agricultural Change', in Joan Davidson and Richard J. Lloyd, eds, *Conservation and Agriculture* (Chichester, 1977), 3-22.

Lowenthal, David, 'Environment as Heritage', in Katie Flint and Howard Murphy, eds, *Culture, Landscape, and the Environment* (Oxford, 2000), 197-217.

Lowitt, Richard, 'The TVA, 1933-1945', in Erwin C. Hargrove and Paul K. Conkin, eds, *TVA: Fifty Years of Grass-Roots Bureaucracy* (Urbana, 1983), 35-65.

Lynch, Michael, *Scotland: A New History* (London, 1991).

McCleery, Alison, 'Population and Social Conditions in Remote Areas: the changing character of the Scottish Highlands and Islands', in Tony Champion and Charles Watkins, eds, *People in the Countryside: Studies of Social Change in Rural Britain* (London, 1991), 144-159.

McCuish, D.J., '90 Years of Crofting Legislation and Administration', *Transactions of the Gaelic Society of Inverness*, 50 (1976-1978), 296-326.

McCuish, D.J., 'The Origin and Development of Crofting Law', *Transactions of the Gaelic Society of Inverness*, 43 (1960-1963), 181-196.

McCusker, John J., 'Comparing the Purchasing Power of Money in Great Britain from 1264 to Any Other Year Including the Present', *Economic History Services* (2001), URL: http://www.eh.net/hmit/ppowerbp/ [accessed 13 November 2002].

Macinnes, Allan I., 'The Crofters' Holding Act: A Hundred-Year Sentence', *Radical Scotland*, 25 (1987), 24-26.

McIntosh, Alastair, Andy Wrightman, and Daniel Morgan, 'Reclaiming the Scottish Highlands: Clearance, Conflict, and Crofting', *The Ecologist*, 24 (1994), 64-70.

McIntosh, Robert P., 'The Myth of Community as Organism', *Perspectives in Biology and Medicine*, 41 (1998), 426-438 (ejournal).

McIntosh, Robert P., *Background of Ecology* (Cambridge, 1985).

McKenzie, R.D., 'The Ecological Approach to the Study of the Human Community', *American Journal of Sociology*, 30 (1924), 287-301.

Macleod, John, *Highlanders: A History of the Gaels* (London, 1996).

McNeill, William H., *Arnold J. Toynbee: A Life* (Oxford, 1989).

Marsden, Terry, et al, *Constructing the Countryside* (London, 1993).

Mather, Alexander S., 'The Alleged Deterioration of Hill Grazing in the Scottish Highlands', *Biological Conservation*, 14 (1978), 181-195.

Mather, Alexander S., 'Government Agencies and Land Development in the Scottish Highlands', *Northern Scotland*, 8 (1988), 39-50.

Mather, Alexander S., 'The Environmental Impact of Sheep Farming in the Scottish Highlands', in T.C. Smout, ed, *Scotland Since Prehistory: Natural Change and Human Impact* (Aberdeen, 1993), 79-88.

Mather, A.S. and R.J. Ardern, *An Annotated Bibliography of Rural Land Use in the Highlands and Islands of Scotland* (O'Dell Memorial Monograph, no 9; Aberdeen, 1981).

Mathieson, Robert, *Survival of the Unfittest: The Highland Clearances and the End of Isolation* (Edinburgh, 2000).

Matless, David, *Landscape and Englishness* (London, 1998).

Merchant, Carolyn, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (New York, 1980).

Merchant, Carolyn, ed, *Major Problems in American Environmental History* (Lexington, MA, 1993).

Millman, R. N., *The Making of the Scottish Landscape* (London, 1975).

Milne, Sir David, *The Scottish Office, and Other Scottish Government Departments* (London, 1957).

Mitchell, Ian, *Isles of the West: A Hebridean Voyage* (Edinburgh, 2001ed).

Mitman, Gregg, *The State of Nature: Ecology, Community, and American Social Thought, 1900-1950* (Chicago, 1992).

Morton, Brian, Review of *Fraser Darling's Islands*, by J. Morton Boyd, *The Times Higher Education Supplement* (7 November 1986).

Nash, Roderick, *Wilderness and the American Mind* (New Haven, 1982ed).

Newton, Michael, *A Handbook of the Scottish Gaelic World* (Dublin, 2000).

Nicholson, Max, *The Environmental Revolution* (London, 1969).

[Nicholson, Max], Obituary of Sir Frank Fraser Darling, *The Times* (19 November 1979).

Nicholson, Max, *The New Environmental Age* (Cambridge, 1987).

Orr, Willie, 'The Economic Impact of Deer Forests in the Scottish Highlands, 1850-1914', *Scottish Economic and Social History*, 2 (1982), 44-59.

Orr, Willie, *Deer Forests, Landlords and Crofter: The Western Highlands in Victorian and Edwardian Times* (Edinburgh, 1982).

O'Sullivan, Paddy, 'The Ending of the Journey: William Morris, *News from Nowhere* and Ecology', in Stephen Coleman and Paddy O'Sullivan, eds, *William Morris and 'News from Nowhere': A Vision for our Time* (Bideford, Devon, 1990), 169-181.

Park, Robert E., 'Human Ecology', *American Journal of Sociology*, 42 (1936), 1-15.

Passmore, John, *Man's Responsibility for Nature* (London, 1974).

Pepper, David, *Modern Environmentalism: An Introduction* (London, 1996).

Pottinger, George, *The Secretaries of State for Scotland, 1926-1976* (Edinburgh, 1979).

Raven, Andrew, 'Agriculture, Forestry, and Rural Land Use', in Eleanor McDowell and James M. McCormick, eds, *Environment Scotland* (Aldershot, 1999), 127-138.

Robertson, Iain, 'Governing the Highlands: The Place of Popular Protest in the Highlands of Scotland after 1918', *Rural History*, 8 (1997), 109-124.

Robinson, Guy M., *Conflict and Change in the Countryside: Rural Society, Economy and Planning in the Developed World* (London, 1990).

Rogers, Alan, *The Most Revolutionary Measure: A History of the Rural Development Commission, 1909-1999* (Salisbury, 1999).

Rolston, Holmes, III, 'Duties to Ecosystems', in J. Baird Callicott, ed, *Companion to 'A Sand County Almanac'* (Wisconsin, 1987), 246-274.

Ruttan, Veron W., 'The TVA and Regional Development', in Erwin C. Hargrove and Paul K. Conkin, eds, *TVA: Fifty Years of Grass-Roots Bureaucracy* (Urbana, 1983), 150-163.

Ryder, John P., 'The Influence of Age on the Breeding Policy of Colonial Nesting Seabirds', in *Behavior of Marine Animals: Current Perspectives in Research*, vol. 4: *Marine Birds* (New York, 1980), 153-168.

Ryder, M.L., 'Sheep and the Clearances in the Scottish Highlands: A Biologist's View', *Agricultural History Review*, 16 (1968), 155-158.

Senior, W.H., Obituary Notice: Sir Patrick Ramsay Laird, *Royal Society of Edinburgh Year Book 1968* (Edinburgh, 1968), 20-22.

Sheail, John, Nature in Trust: A History of Nature Conservation in Britain (Glasgow, 1976).

Sheail, John, *Seventy-five Years in Ecology: The British Ecological Society* (Oxford, 1987).

Sheail, John, 'Nature Protection, Ecologists, and the Farming Context: A U.K. Historical Context', *Journal of Rural Studies*, 11 (1995), 79-88.

Sheail, John, 'War and the Development of Nature Conservation in Britain', *Journal of Environmental Management*, 44 (1995), 267-283.

Sheail, John, 'Scott Revisited: Post-war Agriculture, Planning, and the British Countryside', *Journal of Rural Studies*, 13 (1997), 387-398.

Sheail, John, *Nature Conservation in Britain: The Formative Years* (London, 1998).

Sheail, John, *An Environmental History of Twentieth-Century Britain* (Basingstoke, 2002).

Shrader-Frechette, K.S. and E.D. McCoy, *Method in Ecology: Strategies for Conservation* (Cambridge, 1993).

Simmons, I.G., *An Environmental History of Great Britain* (Edinburgh, 2001).

Slaven, Anthony, *The Development of the West of Scotland: 1750-1960* (London, 1975).

Smout, T.C., *A History of the Scottish People, 1560-1830* (London, 1969).

Smout, T.C., 'Tours in the Scottish Highlands from the Eighteenth to the Nineteenth Centuries', *Northern Scotland*, 5 (1983), 99-121.

Smout, T.C., *A Century of the Scottish People, 1830-1950* (London, 1986).

Smout, T.C., *The Highlands and the Roots of Green Consciousness, 1750-1990* (Perth, 1991).

Smout, T.C., *Nature Contested* (Edinburgh, 2000).

Smout, T.C., 'Highland Land-Use before 1800: Misconceptions, Evidence, and Realities', in T.C. Smout, ed, *Scottish Woodland History* (Dalkeith, 2002ed), 5-22.

Stamp, Sir Dudley, *Nature Conservation in Britain* (London, 1969).

Stewart, Katharine, *Crofts and Crofting* (Edinburgh, 1980).

Stocking, George W., Jr, *Victorian Anthropology* (New York, 1987).

Symon, J.A., *Scottish Farming, Past and Present* (Edinburgh, 1959).

Thompson, Francis, *The Highlands and Islands* (London, 1974).

Turnock, David, *Patterns of Highland Development* (London, 1970).

Turnock, David, *The Historical Geography of Scotland since 1707* (Cambridge, 1982).

Turnock, David, 'The Highlands: Changing Approaches to Regional Development', in G. Whittington and I.D. Whyte, eds, *An Historical Geography of Scotland* (London, 1983), 191-216.

Turnock, David, *The Making of the Scottish Rural Landscape* (Aldershot, 1995).

Walker, Graham, *Thomas Johnston* (Manchester, 1988).

Wannop, A.R., 'Scottish Agriculture', *Scottish Geographical Magazine*, 80 (1964), 90-98.

Waters, C. Kenneth and Albert Van Helden, eds, *Julian Huxley: Biologist and Statesman of Science* (Houston, 1992).

Weir, Tom, *The Western Highlands*. (London, 1976ed).

Whyte, Ian and Kathleen, *The Changing Scottish Landscape, 1500-1800* (London, 1991).

Willis, Douglas, *Crofting* (Edinburgh, 2001ed).

Withers, Charles W.J., *Gaelic Scotland: The Transformation of a Culture Region* (London, 1988).

Withers, Charles W.J., 'The Historical Creation of the Scottish Highlands', in I.L. Donnachie and C.A. Whatley, eds, *The Manufacture of Scottish History* (London, 1989), 143-156.

Wilson, Brian, 'A Harvest of Song from the Hebrides', *The Guardian* (29 April 1996).

Winter, James, *Secure from Rash Assault: Sustaining the Victorian Environment* (Berkeley, 1999).

Wirth, Louis, 'Human Ecology', *American Journal of Sociology*, 50 (1945), 483-488.

Womack, Peter, *Improvement and Romance: Constructing the Myth of the Highlands* (London, 1989).

Wood, Emma, *The Hydro Boys* (Edinburgh, 2002).

Worster, Donald, *Nature's Economy* (Cambridge, 1994ed).

Young, Gerald L., 'Human Ecology as an Interdisciplinary Concept: A Critical Inquiry', *Advances in Ecological Research*, 8 (1974), 1-88.

Other Sources

Gibson, John S., Telephone conservation, 5 March 2003.