

Margaret Levyns and the Decline of Ecological Liberalism in the Southwest Cape, 1890-1975

This article analyses the life and ideas of Margaret Rutherford Levyns (*née* Michell), a South African botanist who worked from 1918 to 1946 as a lecturer in botany at the University of Cape Town and continued to write about the Cape flora (known today as the Cape Floristic Region) until her death in 1975. Until the early 1960s, Levyns maintained a neutral scientific and moral understanding of invasive species, defined here as ‘ecological liberalism’, that reflected her gendered experiences as a botanist, then-prevailing ideas of ecology, the lingering ideals of Cape liberalism, and her extensive research into the phytogeography and taxonomy of the Cape flora. Levyns began to shift her views on non-native invasive species only after retirement. By using Levyns as a lens onto the period, this article distinguishes between a prevailing Cape ecological liberalism from the 1890s to the 1950s that shifted towards a more critical stance on invasive alien species in the 1950s and 1960s.

The Historiography of the Cape Flora

From once being described as a ‘backwater’ of environmental historiography, the Cape continues to flourish as a hotbed of research.¹ Historians have focused

¹ See L. Sittert, ‘The Nature of Power: Cape Environmental History, the History of Ideas, and Neoliberal Historiography’, *Journal of African History*, 45 (2004), 305-13 for a review of literature published before 2004. The quote comes from P. Steyn, ‘A Greener Past? An Assessment of South African Environmental Historiography’, *New Contree*, 46 (1999), 7–27; Recent works focused on the Cape in the nineteenth and twentieth centuries include (in order of publication date): S. Dubow, *A Commonwealth of Knowledge: Science, Sensibility, and White South Africa 1820–2000* (Oxford, Oxford University Press, 2006), 182-5; W. Beinart, *The Rise of Conservation in South Africa: Settlers, Livestock, and the Environment 1770-1950* (Oxford: Oxford University Press, 2008); S. Pooley, ‘Pressed Flowers: Notions of Indigenous and Alien Vegetation in South Africa’s Western Cape, c. 1902-1945’, *Journal of Southern African Studies* [JSAS], 36, 3 (2010): 559-618; J. Carruthers and L. Robin, ‘Taxonomic Imperialism in the Battles for *Acacia*: Identity and Science in South Africa and Australia’, *Transactions of the Royal Society of South Africa*, 65, 1 (2010), 48-64; J. Carruthers, ‘Trouble in the Garden: South African Botanical Politics ca. 1870-1950’, *South African Journal of Botany*, 77 (2011): 258-67; B.M. Bennett, ‘Naturalising Australian Trees in South Africa: Climate, Exotics and Experimentation’, *JSAS*, 37, 2 (2011), 265-280.

particularly on the southwest's Cape Floristic Region (CFR), a relatively compact but highly diverse flora that has almost 9,000 species (nearly 70% of them endemic) in an area approximately 4% of the landmass of South Africa. Starting in the 1890s, English-speaking white settlers in the region began to celebrate and advocate for the preservation of the Cape's indigenous flora. This indigenous flora preservation movement continued to grow in popularity throughout the twentieth century, and it remains a potent political and cultural force in the Western Cape Province today.²

Most historians have employed socio-cultural methods of analysis to explain the rise of 'floral nativism' in the Cape.³ Van Sittert argues that between the Union of South Africa in 1910 and 1939, the celebration of indigenous flora became 'a mark of class, ethnic and regional identity for the old imperial urban, English-speaking middle class marooned in a new nation state government by rural, Afrikaans republicanism'.⁴ Floral nativists had some links to moderate Afrikaners, such as Jan Smuts, but rejected the politics of republican, nationalist Afrikaners.⁵ The celebration and preservation of the Cape's flora by English-speakers aided the formation of popular and scientific ideas of what constituted 'indigenous' and 'alien' plants and ecosystem-types in the region. Though ideas of the 'uniqueness' of the Cape flora gained scientific standing because of the biogeographic arguments put forth by the botanists Rudolph Marloth and Harry Bolus, the middle-class celebration of this unique flora gained popularity primarily for social and cultural reasons. Middle class English-

² For analysis of the current politics of indigenous plants in the Cape see, J. Comaroff and J.L. Comaroff, 'Naturing the Nation: Aliens, Apocalypse and the Postcolonial State', *JSAS*, 27, 3 (2001), 627-51; A. Neely, "'Blame it on the Weeds": Politics, Poverty, and Ecology in the New South Africa', *JSAS*, 36, 4 (2010), 869-87.

³ For this term see, L. Sittert, 'Making the Cape Floral Kingdom: the Discovery and Defence of Indigenous Flora at the Cape ca. 1890-1939', *Landscape Research*, 29, 1 (2003), 113.

⁴ *Ibid.*, 113.

⁵ The early twentieth-century turn was part of the larger South Africanisation of science that sought to bring together Briton and Boer. See S. Dubow, *A Commonwealth of Knowledge: Science Sensibility, and White South Africa 1820-2000* (Oxford: Oxford University Press, 2006), 5-8; J. Foster, *Washed in Sun: Landscape and the Making of White South Africa* (Pittsburg: University of Pittsburg Press), 64.

speakers in the Cape drew upon ideas about the uniqueness of the Cape's indigenous flora as a way to provide the 'justification for evicting the underclass from the commons and their conversion into a preserve for patrician leisure and contemplation'.⁶ Floral nativists selectively advocated for the preservation of attractive flowers while still supporting the broader progressive conservation ideals of state forestry and agriculture. Economics dictated most conservation policies during the nineteenth and early twentieth centuries. The Cape government started passing laws in the 1860s to eradicate alien 'weeds' because they led to declines in agricultural productivity, not because they displaced indigenous flora.⁷

A recent environmental analysis adds to this socio-cultural interpretation. Pooley notes that it is equally important for historians to recognise that 'ideas about indigenous vegetation were shaped in this period by botanists' struggle to adapt ecological theories developed in the northern hemisphere to the Cape's complex, fire adapted Fynbos and Renosterveld'.⁸ The ecological ideas maintained by these early British-trained ecologists differed greatly from current scientific theories on the Fynbos and Renosterveld, which now posit an important role for fire in seed germination and ecological succession. Thus, rather than seeing ecological theory as a direct reflection of socio-cultural ideologies in the Cape, Pooley emphasises how ecologists in South Africa imported, rather than organically created, scientific concepts of what constituted 'natural' ecosystems. Pooley's distinction is important when trying to assess how locality has affected the development of professional scientific ideas of plant and ecosystem indigeneity in the twentieth century.

⁶ Sittert, 'Making the Cape Floral Kingdom', 113.

⁷ L. Sittert, "'The Seed Blows About in Every Breeze": Noxious Weed Eradication in the Cape Colony, 1860-1909', *JSAS*, 26,4 (2000), 666.

⁸ Pooley, 'Pressed Flowers', 617.

Despite this research, there are still many gaps in our understanding of the historical dynamics and long-term trajectory of floral nativism in the Cape. We lack critical studies of large periods of time, important groups (especially women), and individuals. Few historical studies extend their analysis past 1945. Almost all the studies that impute that the celebration of the indigenous flora was connected to English-speaking Cape regionalism and white nationalism have not provided in-depth studies of people that tangibly connect how exclusionary social structures and values actually shaped peoples' specific scientific ideas and actions. Many a macro reading that connects scientific ideas to ideology falls asunder upon closer scrutiny. See, for example, Pooley's critique of Anker for (mis-)reading white nationalism into Jan Smuts' discussion of the invasion of the 'ancient' Cape flora.⁹ Because of an emphasis on connecting preservation to social structures and a culture of white privilege and exclusion, historians have overlooked the fact that mainstream ecological theories in the Cape also reflected tolerant or neutral values until the 1950s. The fact that the existing historiography has underemphasised these values is related to a silence in the literature on the relationship between floral nativism and Cape liberalism, a concept that environmental historians of the Cape have rarely engaged with.¹⁰

This article fills some of these gaps by distinguishing between a prevailing Cape ecological liberalism from the 1890s to the 1950s that shifted towards a more critical stance on invasive alien species in the 1950s and 1960s. It integrates both environmental and socio-cultural perspectives to analyse the life and ideas of Margaret Rutherford Levyns (1890-1975), a South African botanist who worked from 1918 to 1946 as a lecturer in botany at the University of Cape Town and continued to

⁹ Pooley, 'Pressed Flowers', 603.

¹⁰ The exception to this rule is L. Sittert, 'Bringing in the Wild: The Commodification of Wild Animals in the Cape Colony/Province c. 1850-1950', *Journal of African History*, 46 (2005), 270-1.

write about the Cape flora until her death in 1975.¹¹ A biographical analysis of Levyns's life illuminates the broader cultural, social, economic, and environmental contexts in which white English-speaking botanists and ecologists in Cape Town developed ideas of the indigenous and alien flora.¹² A close reading of Levyns's scientific ideas and her experiences traveling throughout the Cape offers insight into how and why views on indigenous versus alien vegetation shifted from tolerance in the early twentieth century to hostility in the 1950s and 1960s. Conversely, a socio-cultural analysis also offers a window into the hitherto unexplored gendered history of botany and ecology in the Cape. Middle class white women like Levyns played an important role in the popularisation of indigenous botany in the Cape. They produced popular field guides, drew botanical pictures for books, founded and directed key conservation groups, and popularised scientific ideas about the Cape's plants.

This article demonstrates how until the early 1960s, Levyns maintained a neutral scientific and moral understanding of invasive species, defined here as 'ecological liberalism', that reflected her gendered experiences as a botanist, then-prevailing ideas of ecology, the lingering ideals of Cape liberalism, and her extensive research into the phytogeography and taxonomy of the Cape flora. Her liberal values and studies of invasion in the Cape led her to imagine a less dire future for the Cape flora. Levyns only began to shift her views on non-native invasive species only after

¹¹ J.E.P. Levyns, ed, *Insnar'd with Flow'rs: The Memoirs of a Great South African Botanist* (Kirstenbosch: Botanical Society of South Africa, 1977), 151. For her original writings and the proof draft see University of Cape Town Manuscripts and Archives [UCT], Levyns Family Papers, BC632, B.3.4-3.5 To facilitate a greater ease of reference by scholars without access to Levyns's papers in Cape Town, I cite from Levyns posthumously published autobiographical writings rather than from her collections at the University of Cape Town Archives. Her writings were generally published as she drafted them, excepting for minor corrections for spelling, grammar, and sentence structure.

¹² The use of biographical analysis has seen a revival in the past decade, especially in the history of science and imperial history. See T. Porter, 'Is the Life of the Scientist a Scientific Unit?', *Isis*, 97, 4 (2006), 314-21; M. Terrall, 'Biography as Cultural History of Science', *Isis*, 97, 4 (2006), 306-314; N. Thomas, 'Exploring the Boundaries of Biography: The Family and Friendship Networks of Lady Curzon, Vicerine of India 1898-1905', *Journal of Historical Geography*, 30 (2004), 496-519; P. White 'Darwin's Emotions: The Scientific Self and the Sentiment of Objectivity', *Isis*, 100, 4 (2009), 811-26.

retirement, although she still remained positive about the long-term future of the flora. A study of Levyns's demonstrates that the decline of neutral views on alien species happened during the 1950s and 1960s, not earlier.

Cape Liberalism, 1890-1912

Margaret Mitchell was born in 1890 in the seaside suburb of Sea Point in Cape Town.¹³ In the 1890s, the population of Sea Point and Green Point was comprised of a mix of just under 3,000 coloured and white residents nestled between Signal Hill and Lion's Head to the east and the Atlantic seaboard to the west. She played amongst the wildflowers on the north slope of Signal Hill in her childhood, and these experiences infused her with a love of plants that continued throughout her life.

The mixed-race composition of the neighbourhood moulded some of her personal views on race and class relations. Her descriptions of childhood, written in the 1960s after the forced removal of non-whites from Cape Town, reflects her value-system that balanced social and political tolerance with a deeply paternalistic belief that separation was 'natural' between different racial groups. Levyns's views reflected the lingering values of Cape liberalism, a Janus-faced political and social ideal.¹⁴ Her

¹³ I herewith cite Levyns's autobiographical writings only when referring to her quotes. All non-cited references to her life come from her writings.

¹⁴ This article uses the term 'Cape liberalism' broadly to describe the liberal political system, economy, and culture created by English-speakers in the Cape that granted at least a limited franchise to non-white voters from 1853 (the granting of self-governing status) to 1968 (the ending of coloured communal representation). Determining the exact dating of origins and end of Cape liberalism, or assessing whether the Cape liberal tradition was truly 'liberal', is not essential to understanding its cultural and intellectual effects on ecological and botanical thought during the period discussed. Rather, it is more important to emphasise that English-speaking liberals like Levyns *imagined* themselves to be more neutral than rural Afrikaans-speaking white republicans. For the orthodox interpretation of Cape liberalism that sees it as a separate historical trajectory compared with the histories of segregation in Natal, Transvaal, and Free State, see P. Lewsen, "The Cape Liberal Tradition-Myth or Reality", *The Societies of Southern Africa in the 19th & 20th Centuries*, 10 (1969-70), 72-88. Republished as 'The Cape Liberal Tradition-Myth or Reality', *Race & Class*, 13, 1 (1971), 65-80. For a revisionist account that situates the Cape within the broader course of South African history, see S. Trapido, 'Liberalism in the Cape in the 19th and 20th Centuries', *The Societies of*

support for the rights of coloured workers in the 1930s and 1940s verifies that she did maintain and act on her liberal views.¹⁵ She fondly remembered her coloured neighbours and noted that ‘No one questioned the rights of coloured people to own property in Sea Point and they felt, as we did, that they were part of the community’.¹⁶ Though she respected the rights of the coloured community, they clearly lived apart socially and culturally. She remembered their differences, such as a fish vendor who had a ‘most picturesque appearance’, ‘another Malay, Abodul, who drove a handsome cab’ and ‘invariably wore a similar-old world hat’, and Lena, her nursemaid.¹⁷ Despite her rosy memories, real social boundaries existed between whites and coloureds in the neighbourhood: all of the coloured people she mentioned worked in lower-level jobs primarily serving the white middle and upper classes.¹⁸

She studied at the South African College from 1908 to 1912. Since 1886, the South African College had offered co-educational courses and allowed women to take degrees.¹⁹ The South African College (SAC) inculcated an elite ethos among its white students, many of whom later went on to positions of leadership in the Colony.²⁰ The SAC’s song, amended when women joined the school, reflected these values.

Some students are girls,

South African pearls,

Southern Africa in the 19th & 20th Centuries, 17 (1972-73), 53-66.

¹⁵ She also fought for the rights and increased pay of Coloured workers at UCT in the 1930s and 1940s. For example, she advocated for higher pay for A.R. Jacobs, a laboratory assistant, in 1937 and again in 1946. See UCT, Levyns Family Papers, BC 625, C5.1-C6.15, ‘M.R. Levyns to The Registrar’, University of Cape Town, 19 Oct 1937; idem, ‘M.R. Levyns to the Registrar’, University of Cape Town, 26 March, 1946.

¹⁶ Levyns, *Insnar’d with Flow’rs*, 1.

¹⁷ *Ibid.*, 2-3.

¹⁸ For an analysis of the contradictions and tensions within ‘liberal’ Cape Town in the early twentieth century see, V. Bickford-Smith, ‘South African Urban History, Racial Segregation and the Unique Case of Cape Town?’ *JSAS*, 21, 1 (1995), 63-78.

¹⁹ Professor W. Ritchie, *The History of the South African College 1829-1918* (Cape Town: T. Maskew Miller, 1918), 295.

²⁰ See W.K. Durrill, ‘Shaping a Settler Elite: Students, Competition, and Leadership at South African College, 1829-1895’, *Journal of African History*, 41 (2000), 221-239.

And ladies of high degree;
They blend sweetness with light,
Mingle meekness with might,
And add grace to the grave Q.E.D.

For boys or girls it's all the same,
Whichever we be,
We spread the name and swell the fame
Of the S.A.C.

Our blood varies much,
We are English, French, and Dutch,
And German in pedigree,
But, whatever our race,
Racial feuds we efface
In love for the old S.A.C.²¹

Despite this song, women were not politically equal to men during the first three decades of the twentieth century. The Cape Province's franchise gave non-white men the right to vote alongside whites in provincial elections if they fulfilled strict financial and educational requirements. White women only gained the franchise in 1930, which meant that for much of her working life Levyns had no voting rights. But despite being unable to vote, middle and upper class white women maintained a far higher social status than did African and coloured men during her lifetime.

²¹ Ritchie, *The History of the South African College*, 303-4.

The Politics of Botany in Cape Town in the Early Twentieth Century

Levyns studied botany, mathematics, and chemistry for three years at SAC before enrolling for a fourth year Honours in botany. Botany was seen a suitable pursuit for women at the time. Popular botany, drawing, and gardening had since the mid nineteenth century been considered respectable interests for middle class white women to pursue in the Cape Colony.²² In the early twentieth century women started to take up important positions in scientific institutions. Harriet Bolus (*née* Kensit), the niece of the wealthy botanist Henry Bolus, directed the Bolus Herbarium upon his death in 1910.²³ The influence of women in botany grew throughout the first decades of the twentieth century.

She studied botany during the transitional period in the great ‘re-imagining’ of the Cape’s indigenous flora.²⁴ English-speaking whites in Cape Town started to prefer the aesthetics of indigenous flora at the same time that they came to believe that the region’s flora faced possible extinction. Amateur and professional botanists in and around Cape Town played a leading role in mobilising public concerns about the destruction of wildflowers resulting from the expansion of agriculture and the growing demand for rare varieties at the Adderly Street flower market in Cape Town. Botanical enthusiasts founded British-dominated Cape institutions and societies for the preservation of the indigenous flora that helped to popularise a patrician culture of botany that Levyns participated in.

Levyns studied botany at SAC under the tutelage of Henry Harold Pearson (1870-1916), one of the leaders of this re-imagining. Pearson grew upon in England,

²² M. Arnold, *Women and Art in South Africa* (New York: St. Martins Press, 1996), 66-75.

²³ Van Sittert, ‘Making of Cape Floral Kingdom’, 123.

²⁴ *Ibid.*

studied botany at Cambridge University, and worked as an assistant at Kew Gardens before moving to Cape Town to take up the Bolus Chair in Botany at SAC in 1903. An advocate of protecting indigenous flora, Pearson called in 1910 for the creation of a 'national' botanical garden to be located in Cape Town.²⁵ He subsequently helped to found Kirstenbosch Botanical Gardens, which he directed from its opening in 1913 until late 1916. Pearson closely mentored Levyns, and his interests and connections in England and Cape Town shaped her early career. In 1911, she took the Honours exam and finished first out of eleven students. She won the Queen Victoria Scholarship and the 1851 Exhibition Memorial Scholarship, which allowed her to take up further studies at Newnham College at Cambridge University in 1912.

Gender and Science in England, 1912-1916

The position of women students at Cambridge University in the 1910s differed greatly from the egalitarian South Africa College in Cape Town. Most of Cambridge University still remained a highly sex-segregated environment in 1912.²⁶ The two women's Colleges, Girton and Newnham, placed strict regulations about the intermixing of men and women. This segregation surprised Levyns, who remembered her time at the SAC 'where men and women mingled freely both in the lecture rooms and outside'.²⁷ She and the two other women pursuing botanical research at Newnham 'were isolated in a small laboratory' apart from men.²⁸ Only with the permission

²⁵ Ibid., 121.

²⁶ Women had slowly gained privileges at Cambridge, including gaining admission to scientific labs in the mid 1870s and being allowed to sit for the Tripos and Honours in 1881. Cambridge dealt women a major blow when they rejected the appeal for women to be granted degrees after intense debate. See M. Richmond, 'Women in the Early History of Genetics: William Bateson and the Newnham College Mendelians, 1900-1910', *Isis*, 92, 1 (2001), 56-7.

²⁷ M.R. Levyns, 'Life in Peile Hall', in *A Newnham Anthology*, edited by A. Phillips (Cambridge: Cambridge University Press, 1979), 95.

²⁸ Ibid., 95.

from 'broad minded authorities' was she allowed to participate in the field excursions held by Newnham College; she was the only woman on these trips.²⁹

She returned to Cape Town briefly for her summer vacation in 1914. At the request of Pearson, she applied for and won the Croll Scholarship, which paid for a third year of research in England. She returned to a wartime Cambridge that she found depressing and bleak. Happily for her, Pearson wrote in early 1915 to ask her to work with William Bateson, a leader in the revival of Mendelian genetics who headed the John Innes Horticultural Institute. Bateson had long been a supporter of women scientists who worked for him.³⁰ Pearson requested that she learn about research in genetics and breeding because he planned to fund a position in breeding at Kirstenbosch upon her return. Her job focused on doing practical tasks for researchers, such as cutting hand sections of plants for genetic research, and she helped with breeding experiments. She also spent six months in early 1916 volunteering in a munitions plant after gaining the position through a family contact in the Ministry of Munitions. Eventually this work took its toll on her health, and she was allowed to quit the position. Rather than continuing the fellowship, Levyns returned home in late 1916, this time for good.

Early Years at the SAC and the University of Cape Town

Levyns arrived back in Cape Town in December, only to find that her mentor, Pearson, had just died in November. The SAC appointed her as a temporary lecturer in botany in order to fill the teaching demands of the Botany Department. An all-women team comprised of Edith Stephens, J. Smith and Levyns lectured and ran the

²⁹ Ibid., 96.

³⁰ Richmond, 'Women in the Early History of Genetics', 85.

Botany Department at the SAC until the appointment of the Englishman David Thoday as the Bolus Professor in 1918 and the appointment of Professor Robert Harold Compton in 1919 as the Director at Kirstenbosch and the Harold Pearson Chair in Botany at UCT. Women continued to play a leading role in teaching after the creation of UCT in 1918, and women made up a large intake of botany students at both SAC and UCT. During this period she lived in a commune located on the grounds of Kirstenbosch Botanic Gardens with two women gardeners and Mary Page, a botanical artist.

Levyns's resided in Cape Town for the rest of her life and taught at UCT from 1918 until university policies forced her to retire at the age of 55 in 1946.³¹ Levyns spent the rest of her career at UCT teaching first year botany students and taking senior students on field excursions locally and further into the Cape's interior. Her work schedule, which included teaching introductory taxonomy and genetics, dictated the research she pursued throughout the rest of her career. She gave up her breeding experiments at Kirstenbosch because of her heavy teaching load.

Her gender shaped much of her career opportunities and constraints. The governing rules of the newly founded University of Cape Town, opened officially in 1918, enshrined a gendered division of labour and pay. Previously, all men and women lecturers received £300. Under new laws from 1918, women would only receive £250 and men £300. When the post of lecturer came open at the University of Cape Town, she almost decided not to apply for it because of the difference in salary between men and women. She only applied when Thoday told her to ask for the salary that she desired. She applied and received the job with the commensurate salary. Five years later, UCT's informal rules about marriage almost forced her to quit

³¹ She decided to stay in Cape Town even after receiving a job offer to work as a senior lecturer at Witwatersrand University in 1917 from the university's incoming Professor of Botany, Charles Edward Moss, an acquaintance of Levyns who previously ran Cambridge University's herbarium.

her job. In 1923, she married Phil Levyns, the son of family friends from Johannesburg. It was an informal custom for women to resign after marriage; but she quietly registered her changed name with the University and continued working. The administration did not seek to actively force her out of her position, and she set a trend for future women working at UCT. After marrying, she decided to publish under her married name, Levyns, instead of continuing to publish under her maiden name, Mitchell. Levyns also set a new trend for women postgraduate students when in 1932 she became the first woman to complete a PhD at UCT with her dissertation on the taxonomy of *Lobostemon* and *Echiostachys*. However, even with her PhD, UCT never promoted her to senior lecturer.

Levyns's roles at UCT also reflected the continued control of the professional structures of Cape botany by British professors and institutions. Most professors of botany in South African universities during the first half of the twentieth century studied and grew up in the United Kingdom.³² Many of Levyns's career choices and publications depended on the advice and patronage of British male professors. This metropolitan-oriented botanical social hierarchy left South African scientists, such as Levyns, to fill the ranks of lectureships and assistantships. This colonial and patriarchal social structure had psychologically harmful impacts on her. She never received a promotion past lecturer, a point that deeply hurt her, though she never publically admitted it.³³

The Taxonomical Turn

³² Pooley, 'Pressed Flowers', 602-5.

³³ Levyns, *Insar'd with Flow'rs*, xi.

Levyns made important scientific contributions in the fields of taxonomy and phytogeography, but she received no institutional advancement and little recognition as a result of her being a woman.³⁴ By pursuing taxonomy, she fit squarely within the scientific tradition of Cape botany in the first half of the twentieth century. Van Sittert notes that ‘Taxonomy had been the bedrock of both imperial botany and its Cape offshoot, and the divination and description of individual species remained central to Cape botany after Union’.³⁵ In addition to copying metropolitan fashions, botanists in the Cape pursued taxonomy for the simple reason that in the 1920s and 1930s botanists in the Cape still knew little about the origin or taxonomy of the southwest Cape’s highly diverse flora. The lack of knowledge on the flora was one reason why, as Pooley demonstrates, British-trained scientists such as the John Phillips and Robert Adamson applied an ‘inappropriate’ ecological theory in the Cape.³⁶ Levyns’s noted that Adamson, a trained ecologist, had to change his research to taxonomy and phytogeography in the late 1920s and early 1930s because, ‘There was no handy pocket flora on which to rely for plant identification. Like many others he was forced to embark on taxonomic work in order to further his own particular studies’.³⁷

Levyns’s own interest in taxonomy developed as a result of her having to teach first year taxonomy to undergraduates. She wrote: ‘[t]he teaching of taxonomy had fallen to my lot and I was becoming more and more interested, but the idea of it as a line of research did not occur to me immediately’.³⁸ Taxonomy suited her teaching schedule: she could manage to undertake this research whilst teaching and

³⁴ Levyns’s struggles and impact on the field of taxonomy finds numerous parallels with the life of Joyce Vickery, a contemporaneous botanist in New South Wales. See C. Hooker, ‘Vickery, Joyce Winifred (1908–1979)’, *Australian Dictionary of Biography*, <http://adb.anu.edu.au/biography/vickery-joyce-winifred-11926/text21367>, accessed 2 November 2011.

³⁵ Van Sittert, ‘Making the Cape Floral Kingdom’, 124.

³⁶ Pooley, ‘Pressed Flowers’, 599.

³⁷ [UCT] Levyns Family Papers, BC625, D9.32.

³⁸ Levyns, *Insar’d with Flow’rs*, 128.

keeping up with her home-making duties. During the late 1910s and 1920s she travelled throughout the Cape on trains and ox-driven wagons. After purchasing a car, she drove throughout the Cape with her husband Phil, an increasingly influential permanent staff member of the Cape Provincial Government, in their car to better understand the geography and distribution of plants. They were frequently described in public as a ‘husband and wife team’³⁹, despite the fact that Phil had only an amateur knowledge of botany; this comment suggests that many people believed that a woman could not have made such academic contributions to botany without the help of a man. During her career she traced the taxonomy and distribution of many key genera in the Cape, including *Cliffortia*, *Disparago*, *Echium*, *Echiostachys*, *Elytropappus*, *Epischoenus*, *Lobostemon*, *Muraltia*, *Paranomus*, *Passerina*, *Stoebe*, and *Trianoptiles*.

She discovered the inadequacies of the existing botanical reference for the Cape at the time when she started teaching taxonomy and taking students on excursions into the field. The standard reference to the Cape’s flora at the time was the multiple volume *Flora Capensis*, compiled by botanists at Kew Gardens who worked from herbarium specimens rather than seeing species and genera in the field. In the late 1910s and early 1920s the *Flora Capensis* presented an unwieldy nine volumes of dense description of the Cape’s flora. Not only did students find it difficult to identify species or genera using these books, Levyns herself bitterly complained about its key for the plants. She eventually came to ‘conclusion that the keys in *Flora Capensis* were useless’.⁴⁰

Frustration with Kew’s *Flora Capensis* led her to begin work on her own guide in the 1920s. She published the *Guide to the Flora of the Cape Peninsula* in

³⁹ Ibid., x.

⁴⁰ Ibid., 128.

1929 based upon her forays into the field and her time spent in the Bolus Herbarium.⁴¹ Out of all her publications, the *Guide* and its 2nd edition, published in 1966, made her a recognised figure in the popular botanical circles in Cape Town, and the book served as a ‘set work’ for hundreds of undergraduates studying botany at UCT until her retirement.⁴² Aspiring local botanists used the book as they explored the area surrounding Cape Town.⁴³ She went out of her way to scientifically justify the book by offering a description of genera other than just ‘the more showy members of the flora’.⁴⁴ The guide fit within accepted boundaries of popular botany: its purpose was to provide the basic botanical information required to identify the larger genera and family of the local flora.

Arguably, her most important scholarly contribution to taxonomy was publically obscured. Levyns never received credit for her work with the influential *Flora of the Cape Peninsula*, published in 1950 and edited officially by Professor Robert Adamson and Colonel T.M. Salter. In the early 1930s, Levyns joined a committee comprised of Adamson, Salter, and Compton that set out to create a comprehensive flora. Compton soon quit the committee because of his workload at UCT and Kirstenbosch. Towards the middle of World War II, Adamson and Salter decided to finish the book. Levyns argued against hastily completing it and demanded time to carefully finish her sections. She wrote,

I probably judged others by myself, for after a busy day teaching and organizing practical classes, I was tired and in no state to embark on

⁴¹ M.R. Levyns, *Guide to the Flora of the Cape Peninsula* (Cape Town: Juta and Co, 1929); *Guide to the Flora of the Cape Peninsula* (2nd Edition, Cape Town: Juta and Co, 1966).

⁴² ‘Botany Reviews’, *South African Journal of Science*, 63 (1967), 215. For her role in popular botany see Sittert, ‘Making the Cape Floral Kingdom’, 123.

⁴³ O.A. Leistner, ‘Guide to the Cape Flora’, *Taxon*, 16 (1967), 140.

⁴⁴ Levyns, *Guide to the Flora of the Cape Peninsula*, v.

critical work...I insisted that my share of the work could not be completed until the burden of my teaching was lessened.⁴⁵

When she refused to finish her sections of the book early, Adamson and Salter removed her from the editorial board. But Adamson and Salter could not actually publish the book without her contributions because she received the task of completing some of the most difficult families, totalling 160 genera in all.⁴⁶ Eventually she completed her section in the middle of 1947, as she promised, and the book went to the press, but without her name as an official editor. A publication delay meant that the book came out in 1950. Levyns never publically complained about her removal, but expressed frustration in her own private writings.⁴⁷

Origins and the Defence of the Cape's Flora

Levyns's actively participated in the debate over the geographic origins of the southwest Cape's diverse, endemic flora. Botanists from Europe and South Africa debated whether the Cape's flora originated in the southern or northern hemisphere. These competing scientific theories were often bound up in a larger battle over identity politics related to South African nationalism and the dominance of British imperialism in Africa.

The first theory, advanced most famously by the director of Kew Gardens, William Thiselton-Dyer (1843-1928), suggested that the Cape flora originated in the

⁴⁵ Levyns, *Insar'd with Flow'rs*, 132.

⁴⁶ R. Adamson and T.M. Salter, eds., *The Flora of the Cape Peninsula* (Cape Town: Juta and Co, 1950).

⁴⁷ Levyns, *Insar'd with Flow'rs*, xi, 132.

northern hemisphere and then migrated southwards during the last Ice Age.⁴⁸ The explanation for why the Cape had such a diverse, endemic and small flora was that in its southern migration, the southwest Cape acted as a ‘cul-de-sac into which the species have poured and from which there is no escape’.⁴⁹ This built upon mid-Victorian ideas about the ‘dominance’ of the biota of the northern hemisphere, a sort of proto-ecological imperialism.⁵⁰

The second theory saw the Cape’s flora as having its origin in a lost southern continent. Joseph Hooker advocated this theory after his voyages throughout the southern hemisphere from 1839-43.⁵¹ Hooker saw many of the genera in Australia and South Africa as being the relics of an ancient ‘Antarctic’ flora, which stretched throughout the entire southern hemisphere.⁵² The theory of the southern origin of the Cape’s flora gained popularity among many botanists and nationalists in South Africa during the late nineteenth and early twentieth centuries. Harry Bolus (1834-1911) and Selmar Schönland (1860-1940) emphasised the potential southern origin of the Cape’s flora because of its similarities to the flora in southwest Australia.⁵³

The supposed floristic similarities between southwest Australia and southwest South Africa served to forge a nascent southern hemisphere identity. It helped South

⁴⁸ Thiselton-Dyer, ‘Geographical Distribution of Plants’, in A. C. Seward (ed.) *Darwin and Modern Science* (Cambridge: Cambridge University Press 1909), 317; For a summary see J.W. Bews, ‘Some General Principles of Plant Distribution as Illustrated by the South African Flora’, *Annals of Botany*, 35, 137 (1921), 2-4.

⁴⁹ Thiselton-Dyer, ‘Geographical Distribution of Plants’, 311.

⁵⁰ Browne, *The Secular Arc*, 130-1.

⁵¹ See the three volumes of J.D. Hooker, *The Botany of the Antarctic Voyage of H.M. Discovery Ships Erebus and Terror in the Years 1839-1843, Under the Command of Captain Sir James Clark Ross*, Kr, R.N., F.R.S. & c. (London: Lovell Reeve, 1844, 1853, 1859).

⁵² J.D. Hooker, *On the Flora of Australia; Its Origins, Affinities and Distributions; Being an Introductory Essay to the Flora of Tasmania* (London: Lovell Reeve, 1859), CIV.

⁵³ H. Bolus, ‘Sketch of the Cape Flora’, in *Official Handbook of the Cape of Good Hope: History, Productions and Resources* (Cape Town: Saul Solomon, 1886), 295-297; H. Bolus and A.H. Wolley-Dod, *A List of the Flowering Plants and Ferns of the Cape Peninsula, With Notes on Some of the Critical Species*, 228-30. Bolus, ‘Sketch of the Floral Regions of South Africa’, in W. Flint and J.D.F. Gilchrist, eds, *Science in South Africa: A Handbook and Review* (Cape Town: T. Maskew Miller, 1905), 216-17; S. Schönland, ‘Origin of the Flora of South Africa’, in *Report of the South African Association for the Advancement of Science 5th Meeting Natal, 1907* (Cape Town: The Argus Printing and Publishing Company, 1908), 106

African nationalists during the interwar years create space from British imperialism in the northern hemisphere. Jan Smuts drew upon the 'southern' origins of the Cape's flora to argue for that South African scientific establishment align itself with the remnants of Gondwanaland.⁵⁴ In his 1925 speech as the President of the South African Association for the Advancement of Science he argued:

Hitherto, as I have said, it is the European affiliations which have guided our thought and our research; we have looked to the North for explanations as well as our origins. In future, on the lines of Wegener's speculations, we shall look more to East and West--to our affiliations with South America, India and Madagascar and Australasia for the great connections which can explain the problems of our past and present...The grouping of the southern continents and lands and the intimate connections and interdependence of their scientific problems will be our new point of departure.⁵⁵

Smuts saw in Gondwana the potential to create linkages between settler colonies in the south, especially Australia.

Levyns developed her own views on the subject of the origin and the vigour of the Cape flora. Her travels along the edges of the boundary between the Cape Flora and Karoo with students and her husband gave her a first-hand insight into the geography of the Cape's flora. At the beginning of her botanical studies at SAC and Cambridge, Levyns had no identifiable political or scientific opinion on the question

⁵⁴ S. Dubow, 'A Commonwealth of Science: the British Association in South Africa, 1905 and 1929', in S. Dubow, ed., *Science and Society in Southern Africa* (Manchester: Manchester University Press, 2000), 80-81.

⁵⁵ Cited from J.C. Smuts, *Plans for a Better World: Speeches of Field-Marshal the Right Honorable J. C. Smuts* (London: Hodder and Stoughton, 1942), 142.

of the origin of the Cape flora, although she was deeply impressed during her studies at SAC by Andreas Schimper's (1856-1901) *Plant Geography Upon a Physiological Basis*.⁵⁶ She borrowed this book personally from Pearson and it made a deep impression upon her botanical writing later on in her life. Schimper's work was widely known and respected in the Cape. Rather than looking at a single 'origin' for specific floras, Schimper grouped the world's floras based upon the physical structure. He compared the Cape's flora with those in southwest Australia, the Mediterranean, and parts of Chile, Argentine and southern California.⁵⁷

Levyns first approached the subject of the origin of the Cape's flora in the late 1930s after her revisions of the genera *Lobostemon*, *Stoebe*, *Echium*, and *Echiostachys* gave her the confidence and evidence to construct the flora's past. She maintained throughout her career that the Cape flora originated in the northern hemisphere, not from a lost southern supercontinent. Though Levyns's ideas carried with them potential political implications, and she directly challenged the southern argument during his lifetime, her writings never expressed political arguments derived from her research.⁵⁸ Writing in 1932, she noted 'evidence from plant distribution in southern Africa all tends to point in the opposite direction, to a northern origin rather than a southern'.⁵⁹ She emphasised, however, that the question remained unanswered because 'it is futile to speculate on the origins of the Cape flora as a whole' owing to

⁵⁶ A.F.W. Schimper, *Pflanzen-Geographie auf Physiologischer Grundlage* (Gena: Verlag von Gustaf Fischer, 1898); idem, *Plant-Geography Upon a Physiological Basis*, Translated by W.R. Fisher (Oxford: The Clarendon Press, 1903).

⁵⁷ Schimper, *Plant-Geography*, 507.

⁵⁸ Levyns, 'Some Evidence Bearing on the Origin of the Cape Flora,' 421.

⁵⁹ See M.R. Levyns, 'Some Evidence Bearing on the Past History of the Cape Flora', *Transactions of the Royal Society of South Africa*, 26 (1938): 401-24, 420-1. Other important papers include: M.R. Levyns, 'Floral Evolution and Geographical Distribution in *Lobostemon*', *South African Journal of Science*, 26 (1930), 318-20. M.R. Levyns, 'Clues to the Past in the Cape Flora of Today', *South African Journal of Science* 49 (1952), 155-157; M.R. Levyns, 'Some Geographic Features of the Family Polygalaceae', *Transactions of the Royal Society of South Africa* 34 (1955), 386; M.R. Levyns, 'Past Plant Migrations in South Africa', *Annals of the Cape Provincial Museum*, 2, 2 (1962), 8.

insufficient paleobotanical and paleoclimatic data.⁶⁰

Invasive Species in the Cape

Levyns's early research into the dynamics of ecological colonisation/invasion in the Cape focused on how to stop the spread of weedy plants that threatened the productivity of farms. European introductions of exotic flora dated to the first Dutch settlement in Cape Town in 1652, but by the nineteenth century, 'weeds directly imperiled the settler's always tenuous hold on the land and provided of officials with further evidence of the environmental degradation caused by traditional farming practices and the urgent need for reform'.⁶¹ The Cape Colony started passing laws to force farmers to comply with eradication programs in 1861, though these laws proved largely ineffective at stopping the spread of weeds and, like the Scab Acts, had a strong class-bias in favour of English-speaking progressives and liberals.⁶² Levyns tended to see weed control as a problem that could be controlled by 'proper' farming techniques.

Levyns started to study the ecological succession of 'invasive' species in the late 1910s. In 1919, she worked with three female masters-degree candidates to investigate the effects of a fire on Signal Hill to understand the pattern of ecological succession after fire. Together, the four women studied the resulting aftermath of a

⁶⁰ Levyns, 'Some Evidence Bearing on the Past History of the Cape Flora', 424.

⁶¹ S. Pooley, 'Jan van Riebeeck as Pioneering Explorer and Conservator of Natural Resources at the Cape of Good Hope (1652-'62)', *Environment and History*, 15, 1 (2009); Sittert, "'The Seed Blows About in Every Breeze'", 656.

⁶² Beinart, *The Rise of Conservation in South Africa*; Pooley 'Pressed Flowers', 607; L. Sittert, "'Our Irrepressible Fellow-Colonist": the Biological Invasion of Prickly Pear (*Opuntia ficus-indica*) in the Eastern Cape c.1890-c.1910', *Journal of Historical Geography*, 28, 3 (2002), 397-419; *idem*, "'The Seed Blows About in Every Breeze'"; K. Brown, 'Political Entomology: The Insectile Challenge to Agricultural Development in the Cape Colony 1895-1910', *JSAS*, 29, 2 (June 2003), 529-549; N. Visser, 'A Space for Conflict: The Scab Acts of the Cape Colony, c 1874-1911', (draft PhD Thesis, University of Cape Town).

two-day fire that started on the 5th of February 1919. She focused on the tough shrub, *Elytropappus rhinocerotis*, also known as *renosterbos*, Afrikaans for ‘rhinoceros bush’. Rudolph Marloth previously argued that Renosterveld, a type of vegetation dominated by *E. rhinocerotis*, was an invasive, ‘degraded’ or ‘alien’ vegetation type that had been historically expanding across the Cape as a result of the burning of pasture by farmers.⁶³ Levyns’s research into the regeneration of the flora indicated that the species did expand after fire, and its ‘formation is an artificial one’, but she argued it was native to the Cape.⁶⁴

She researched *E. rhinocerotis* again during a series of plot experiments in 1925 outside at Ida’s Valley near Stellenbosch. Her findings suggested that *E. rhinocerotis* was a stage of succession rather than a climax community. Her ecological ideas reflected those of the American Fredric Clements (1874-1945), who saw ecological systems as having ‘pioneer’ species in ‘succession communities’ that developed eventually towards the natural ‘climax community’ that stabilised and remained in equilibrium. But she believed that this stage of succession was ‘an unmitigated curse’ for many farmers because of its 16-plus year life cycle devastated productivity and farms.⁶⁵ However, rather than being alarmist about its future, she suggested that farmers physically clear land rather than burn it to control the species during its lifecycle. She believed that Renosterveld had expanded beyond its ‘natural’ range, but she believed that humans could ultimately control the species with proper clearing and time.

None of Levyns’s early publications emphasised ‘nativeness’ as an important botanical or ecological factor. Tellingly, her 1929 *Guide to the Flora of the Cape*

⁶³ Pooley ‘Pressed Flowers’, 615-6.

⁶⁴ M.R. Levyns, ‘Some Observations on the Effects of a Bush Fire on the Vegetation of Signal Hill, *Transactions of the Royal Society of South Africa*, 10 (1922), 230.

⁶⁵ M.R. Levyns, ‘Veld-Burning Experiments at Ida’s Valley, Stellenbosch’, *Transactions of the Royal Society of South Africa*, 17, 2 (1929), 89.

Peninsula included native and introduced plants.⁶⁶ Levyns's saw invasive species as an economic problem, not as an ecological problem caused primarily by alien species. In fact, her early work on invasion focused almost exclusively on the native *E. rhinocerotis*. She echoed the view of John Bews and other South African ecologists of the period who believed that 'natural' climax communities would maintain equilibrium without human disturbance.⁶⁷ Human activity, rather than the biological tendencies of introduced species, caused 'colonisation' or 'invasion', words that she used interchangeably throughout her career. She emphasised that colonisers/invasers could be either native or exotic species: 'There is no reason to suppose that, when the native vegetation is destroyed, a native plant may not get out of hand in the process of re-colonisation, just as easily as one from some other country'.⁶⁸ Her belief that human disturbance, not the 'natural' processes of ecological succession, caused invasions led her to see *people* not *plants* as the primary cause of invasions.

Retirement and After, 1946-1975

After being forced to retire by UCT at the age of 55 in 1946, Levyns maintained a small attic office in the Department of Botany and continued to actively contribute to learned societies, publish articles, and give public lectures. During her retirement she frequently acted as a symbolic head at national scientific meetings, including receiving the South African Medal in 1958 and becoming the President of the Royal

⁶⁶ Levyns, *Guide to the Flora of the Cape Peninsula*, V.

⁶⁷ Pooley, 'Pressed Flowers', 606.

⁶⁸ Levyns, 'A Preliminary Note on the Rhenoster Bush', 383. On this issue, her thoughts presaged recent criticisms of invasion biology studies that critique practitioners for narrowly viewing 'invasion' in terms of exotic species rather than viewing it more neutrally as a question of succession ecology (which is less focused on defining whether a species is 'native' or 'exotic' and more focused on the dynamics of succession). M. Davis *et. al.*, 'Vegetation Change: A Reunifying Concept in Plant Ecology', *Perspectives in Plant Ecology, Evolution and Systematics* 7, 1 (2005), 69–76.

Society of South Africa in 1962. These honorary roles provided her with a platform to express her larger theory of the origins of the Cape's flora, the end result of her life's work in the field, classroom, and herbarium. Her public speeches continued to challenge the southern origins of the Cape flora. She also became increasingly critical of alien invasive species in the early 1960s, a change that mirrored a larger shift in ecology and botany in the Cape.

A sense of impotence and frustration shaped Levyns's life during her retirement. She began having eye troubles that required her to use a magnifying glass to read. She left UCT frustrated that she was forced to retire at a younger age than were men. Her retirement also happened just before the publication of 'Adamson and Salter's' flora and the election of the Nationalist Government in 1948. The English-speaking elite in the Cape Province continued to lose power nationally during the last three decades of her life as apartheid politics reshaped the country. The forced eviction of Africans and Coloureds in Cape Town during the late 1950s and 1960s was traumatic for many English-speaking liberals like Levyns who nostalgically remembered the 'liberal' Cape political franchise and the social tolerance of Cape Town of the late nineteenth and early twentieth centuries.⁶⁹ In her autobiography, she bitterly lamented the removal of coloureds from Sea Point and Cape Town during the late 1950s and early 1960s, which caused her and her friends 'much heart-burning'.⁷⁰

⁶⁹ For the removals in Sea Point in 1959-61 see U. Mesthrie, 'The Tramway Road removals, 1959-61' *Kronos*, 214 (1994), 61-78; M. Paulse, "'Everyone Had Their Differences But There Was Always Comradeship": Tramway Road, Sea Point, 1920s to 1961', in S. Field, ed, *Lost Communities, Living Memories: Remembering Forced Removals in Cape Town* (Cape Town: David Philip, 2001), 44-61; and M. Paulse, 'An Oral History of Tramway Road and Ilford Street, Sea Point, 1930s-2001: the Production of Place by Race, Class and Gender' (PhD thesis, University of Cape Town, 2002).

⁷⁰ Levyns, *Insnar'd with Flow'rs*, 1. For the removals in Sea Point in 1959-61 see U. Mesthrie, 'The Tramway Road removals, 1959-61' *Kronos*, 214 (1994), 61-78; M. Paulse, "'Everyone Had Their Differences But There Was Always Comradeship": Tramway Road, Sea Point, 1920s to 1961', in S. Field, ed, *Lost Communities, Living Memories: Remembering Forced Removals in Cape Town* (Cape Town: David Philip, 2001), 44-61; and M. Paulse, 'An Oral History of Tramway Road and Ilford Street, Sea Point, 1930s-2001: the Production of Place by Race, Class and Gender' (PhD thesis, University of Cape Town, 2002).

Levyns's retained a strong 'Anglo' identity that she re-enforced by traveling to Britain and Australia before South Africa became a republic in 1961.

The bulk of Levyns's time in retirement was spent home-making at her Rondebosch house, traveling, and writing for the *Standard Encyclopaedia of Southern Africa*. From the late 1940s to her death in 1975, she wrote 361 encyclopaedia articles on South African plants. This contribution, along with the 1966 publication of the 2nd edition of her *Guide to the Flora of the Cape Peninsula*, cemented her position as prominent figure in the popular botanical culture in the Cape. These works served as a link between the production of academic knowledge and its popular dissemination. One review in *The Star* of the second edition noted that her book was ideal for women gardeners who sought to gain 'status' among other women gardeners for their extensive knowledge of the flora.⁷¹ The book sold 936 copies by 1973.⁷² It remains a minor-classic in the field, with the Bolus Library reprinting a revised edition in 2003.⁷³

Her major intellectual contribution to botany during her retirement was to detail a unified theory of the origin and diversification of the Cape flora. In the 1950s to 1970s, botanists still considered the question of the origin of the Cape flora as a puzzling 'riddle to be solved'.⁷⁴ The theory that Levyns proposed in the 1950s and 1960s emphasised climate as the main factor that led to the rapid speciation of the Cape flora.⁷⁵ She argued that the majority of families in the Cape flora evolved from the remnants of an ancient, temperate flora that descended from the north. This

⁷¹ Anonymous, 'Floreat Peninsula', *The Star*, 26 August 1966.

⁷² UCT, Levyns Family Papers, BC625, C7.5.

⁷³ T.H. Trinder-Smith, *The Levyns Guide to the Plant Genera of the Southwestern Cape* (Cape Town: Bolus Herbarium, 2003).

⁷⁴ C. Lighton, *Cape Floral Kingdom: Classic Story of South African Wild Flowers* (Cape Town: Juta and Company, 1973), 111.

⁷⁵ For discussions of the influence of this idea see G.A. Verboom, et. al, 'Origin and Diversification of the Greater Cape flora: Ancient Species Repository, Hot-Bed of Recent Radiation, or Both?', *Molecular Phylogenetics and Evolution*, 51, 1 (2009), 44-5.

temperate flora retreated to high mountains in Africa during the onset of a tropical and sub-tropical climate during the climatic shift, likely in the mid Tertiary period.⁷⁶ Its migration into higher mountains explained why remnants of the Cape flora could still be found dotting the highlands of Africa but never thriving in the wetter, hotter, or drier climates below. She proposed for that first time that the Cape's high levels of endemism and diversity was a result from a change in the climate of the Cape, which then ushered in a period of 'rejuvenation in the south-west which led to the massing of species in this area and to the appearance of numerous youthful endemics'.⁷⁷ After the Cape's climate shifted from wet to dry, the Cape flora diversified and colonised the region below. She deduced this by noting that some species evolved under a different climate, with a summer instead of winter rainfall.⁷⁸

Levyns's explanation helped to put to rest the idea, expressed most vocally by Smuts, that the southwest Australian and the Cape floras resembled each other because of an ancient connection to Gondwanaland. In 1962, Levyns wrote that the similarities of the two floras, 'has fired the imagination of many who assumed it to be the remains of an old austral flora. However, evidence is lacking'.⁷⁹ She believed that climatic conditions played a key role in the creation of these strikingly similar floras. In her 1959 travel diary she wrote,

The plants of Australia have much in common with those of South Africa, especially in the south-western corners of both continents

⁷⁶ M.R. Levyns, 'Clues to the Past in the Cape Flora of Today', *South African Journal of Science*, 49 (1952), 155-157.

⁷⁷ M.R. Levyns, 'Some Geographic Features of the Family Polygalaceae', *Transactions of the Royal Society of South Africa*, 34 (1955), 386.

⁷⁸ M.R. Levyns, 'Notes on the Biology of the Rhenoster Bush', *South African Journal of Science*, 52 (1956), 143.

⁷⁹ M.R. Levyns, 'Past Plant Migrations in South Africa', *Annals of the Cape Provincial Museum*, 2 (1962), 8

whether the summers are hot and dry and the winters wet and mild.

In various parts of the world, conditions such as these produce floras of great interest—especially in the case of these two great southern continents.⁸⁰

Her research suggested that the sub-tropical forests of George-Kynsna showed the most affinity to the Austral flora, the Karoo flora the least, and the flora in the southwest Cape (now called the CFR) and southwest Australia sharing only a few points of common ancestry, such as the family Proteaceae, from Gondwanaland.⁸¹

Levyns's views on invasive species shifted during the late 1950s and 1960s. This mirrored a larger popular and professional shift in the terms that scientists and floral advocates in the Cape used to describe invasive species in the 1950s and 1960s. In the 1950s, Cape-based conservation and environmental groups started to paint dire pictures of the future of the Cape's flora, which they portrayed as being threatened by invading alien plants, which the Control of Alien Vegetation Committee called 'green cancers'.⁸² Before the 1950s, defenders of the Cape flora saw human action, not the biological diffusion of alien species, as the Cape flora's greatest threat. By the 1950s, botanists and ecologists began to see the biological dynamics of invasion as a greater threat to the flora than previously assumed. The relatively rapid diffusion of woody alien species in the Cape during the first half of the twentieth century, combined with the creation of plantations by the Forestry Department, provided the 'evidence' that

⁸⁰ Levyns, *Insar'd with Flow'rs*, 151.

⁸¹ Levyns, 'Past Plant Migrations in South Africa', 7-10.

⁸² These groups included the Cape Natural History Club and the Mountain Club of South Africa, and the public propaganda of the Control of Alien Vegetation Committee and Cape Nature Conservation Department. For the quote see Control of Alien Vegetation Committee, *The Green Cancers in South Africa: The Menace of Alien Vegetation* (Cape Town: Citadel Press, 1959). During the 1950s, Levyns's husband actively supported the establishment of the Cape Department of Nature Conservation. See D. Hey, *A Nature Conservationist Looks Back* (Cape Town: Cape Nature Conservation, 1995), 87.

invasion was becoming an increasing problem.⁸³ Fears of invasion by pines and wattles built on a longer critique of the negative effects of exotic trees, pointed out by numerous critics such as Smuts, the ecologist John Phillips, and many farmer in the 1930s.⁸⁴ This shift also corresponded to a larger global change in the use of war-like language to describe invasion.⁸⁵

Levyns generally used the word ‘invasion’ neutrally to describe both the ecological expansion of South African (such as the *Aloe* and *Caralluma* found in the Karoo) and foreign species in the southwest Cape.⁸⁶ She also believed that some invasions could produce ‘good’ results, especially if the species was rare in its native home. On a trip to Western Australia in 1959 she happily recorded the colonisation of a ‘handsome gladiolus’, *Gladiolus caryophyllaceous*, which ‘is now a rarity [in the Cape], so it was good to know that it has found a refuge in Western Australia where it is very much at home and is extending its boundaries’.⁸⁷ She frequently noted in her Australian travel journal the numerous South African and Mediterranean plants invading Australia, and recognised that whether or not people considered these plants as ‘weeds’ depended upon their context and locality. In this sense, whether or not a plant was ‘native’ mattered less than its environmental impact and peoples’ perceptions of these changes.

⁸³ B.M. Bennett, ‘The El Dorado of Forestry: The Eucalyptus in India, South Africa, and Thailand, 1850–2000’, *International Review of Social History*, 55 (2010), 37.

⁸⁴ *Ibid.*, 36.

⁸⁵ For the increasingly war-like language of invasion studies see Salisbury’s paper presentation at the South African Association for the Advancement of Science meeting in Cape Town, 1952. E. Salisbury, ‘Natural Selection and Plant Invasion’, *South African Journal of Science*, 49, 1 (1952): 115-119, 116. Chew argues that this war-like language developed in the 1920s, but became more broadly popularized in the late 1950s with the publication Charles Elton’s *The Ecology of Invasions by Animals and Plants*, (London: Methuen, 1958). See M. Chew, *Ending with Elton: Preludes to Invasion Biology* (PhD, Arizona State University, 2006). The influence of Elton on early studies of invasion in South Africa is an important subject that remains to be studied.

⁸⁶ For her use of the term ‘invader’ to describe African flora see, Levyns, ‘Clues to the Past in the Cape Flora of Today’, 160.

⁸⁷ Levyns, *Insar’d with Flow’rs*, 153. This plant is considered rare in South Africa but has naturalised in Western Australia. See, <http://florabase.calm.wa.gov.au/browse/profile/1520>, accessed 20 June 2011.

Evidence of rapid expansion of alien woody plants in the Cape led Levyns to become worried for the first time about invasion by alien plants in the Cape. She voiced dismay at the rapid expansion of pines in the Cape after taking repeat photographs near the Palmiet River in February 1947 and then again in February 1963. [Insert pictures] Exotic pines had colonised the surrounding flora between visits, and they presented a menacing advance guard descending over the hill. Below the picture she wrote in hand: ‘Almost the same view – February 1963 – The Advance of *Pinus pinaster* on the nek is horrifying’.⁸⁸ She also expressed concern at the expansion of ‘Australian invaders’ in Fish Hoek from the 1920s to the early 1960s.⁸⁹ Her photographs and commentary is confirmed by other repeat photography and analysis of the expansion of riparian vegetation in other semi-arid winter-rain regions of the Cape that indicates an expansion of non-native and native woody plants in response to changing land-use patterns during the late nineteenth through mid twentieth centuries.⁹⁰ This land-use change corresponded to a major state-led program to introduce, breed, and distribute rapid-growing trees, especially pines and wattles, in the late nineteenth through mid twentieth centuries.⁹¹ Though the number of pines and wattles increased in population throughout the middle of the twentieth century, some of these populations were likely planted by the Forestry Department and were not true biological ‘invasions’.⁹²

Though she worried about the local effects of individual invasions, she maintained that the Cape flora itself was safe from extinction. As the President for the

⁸⁸ UCT, Levyns Family Papers, BC625, M10.

⁸⁹ Levyns, *Insar'd with Flow'rs*, 50.

⁹⁰ M.T. Hoffman and R. Rohde, ‘Rivers Through Time: Historical Changes in the Riparian Vegetation of the Semi-Arid, Winter Rainfall Region of South Africa in Response to Climate and Land Use’, *Journal of the History of Biology*, 44 (2011), 59-80.

⁹¹ Bennett, ‘Naturalising Australian Trees in South Africa’, 265-8. For a scientific review of these dynamics see D. Richardson, ‘Forestry Trees as Invasive Aliens’, *Conservation Biology*, 12, 1 (February, 1998), 18-26.

⁹² See the historic analysis of G.L. Shaughnessy, ‘Historical Ecology of Alien Woody Plants in the Vicinity of Cape Town, South Africa’ (Ph.D. Thesis, University of Cape Town, 1980).

Botanical Section at the 1952 at the South African Association for the Advancement of Science, Levyns tried to dispel this notion. She assured the audience: 'The sad picture of the Cape flora being slowly but surely pushed off the African continent by the aggressive tactics of newer and more drought-resistant floras is far from accurate'.⁹³ She believed the Cape's flora would, with proper protection from human action, would continue to exist indefinitely into the future: 'Its relations with the neighbouring floras are those of tolerance provided that man in his manifold activities does not upset the balance'.⁹⁴ The idea that there was a natural 'tolerance' between different ecological that only human action could 'upset' defined Levyns's ecological liberalism until her death in 1975.

Conclusion

An examination of Levyns's life demonstrates how gendered norms and the socio-political dynamic of the Cape shaped the scientific and popular study of indigenous flora in Cape Town. Women could acceptably participate as intermediaries between the production of scientific knowledge and its distribution to students and the public. They also engaged in leading research, although they received little institutional credit for this work and continued to work beneath male, usually British, professors. Levyns received some recognition for her labours, but she constantly had to push back against the social norms of a patriarchal university institution and culture, and her accolades came decades after her retirement. After working for almost twenty years and publishing books and papers, she never was promoted above the level of lecturer.

⁹³ M.R. Levyns, 'Clues to the Past in the Cape Flora of Today', 163.

⁹⁴ *Ibid.*, 163.

Only within the past few decades has Levyns's immense contributions to the understanding of the Cape Floristic Region been more fully recognised.⁹⁵

The findings of this article also point to important connections between Levyns's social status as a white middle class woman, her Cape-centric liberal political views, and her views on foreign and native species in the Cape prior to the early 1960s. Levyns's ideas mirrored the more tolerant view of invasion and alien species held by most mainstream ecologists and botanists in South Africa during the first half of the twentieth century. She shifted her views as a result of actual expansion on non-native species and as a result of the increasingly critical stance popular Cape conservation/environmental groups took on alien species in the 1950s and after. Instead of liberalism, advocates of the flora in the second half of the twentieth century distinguished more sharply between 'good' indigenous plants and 'bad' alien invaders. Scholars seeking to historically trace the origins to modern popular condemnations of alien vegetation in the Cape should focus their attentions on the second half of the twentieth century, when the vilification of non-native species became more intense.

⁹⁵ See the dedication in Richard Cowling, ed., *The Ecology of Fynbos: Nutrients, Fire and Diversity* (Cape Town: Oxford University Press, 1992). Cited from Pooley, 'Pressed Flowers', 615.

