

Archiving the Scientific Legacy of Dr. Alec Costin

GENEVIEVE T. WRIGHT¹, KEITH L. MCDUGALL¹, GAVAN J. MCCARTHY²

¹Office of Environment and Heritage, PO Box 733, Queanbeyan NSW 2620; ²eScholarship Research Centre, University of Melbourne, Parkville VIC 3010.

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Alec Costin is one of Australia's foremost ecologists, internationally respected for his pioneering work into the soils, hydrology and vegetation of the Australian alpine regions. Advisor to governments and their agencies, he was instrumental in the conservation of the Australian Alps. Alec's field notes, data sheets and Kodachrome slides, a record of the Alps in the 1950s and 60s, are important historically and provide an important resource to interpret change in vegetation and landscapes in the Australian Alps. The University of Melbourne, funded by the Australian Alps National Parks, will catalogue and archive these materials, so future generations of scientists and historians can easily gain access to them.

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DR. ALEC COSTIN

Dr. Alec Costin is regarded as the father of alpine ecology in Australia. A widely-respected scientist, conservationist and exceptional scientific communicator, Alec was a prolific writer and published many scientific papers. Alec remains a mentor and inspiration to many ecologists today and his records are an invaluable resource for future conservation of the Alps.

Alec started his career in alpine ecology in 1946 with the Soil Conservation Service of NSW. He then, through research scholarships, studied mountain environments in other parts of the world. When he returned to Australia, Alec had a short working period in the Victorian Alps before taking up a position in 1955 with CSIRO based in NSW. In this role, Alec continued to focus his research on all aspects of alpine ecology.

Alec's research on soils, hydrology and vegetation were ground-breaking and were critical for the protection and conservation of the Australian Alps. He successfully lobbied politicians, government departments and research institutions to protect the Alps and without his efforts the Alps would not be conserved as they are today.

Alec published widely but his first major work in 1954, *The Ecosystems of the Monaro*, was one of the first regional studies describing the area's ecology, ecosystems and management (Costin, 1954). The study covered over 1.5 million hectares and is a keystone publication still in use today. Alec was also co-author of 'A report on the Condition of the High Mountain Catchments of New South Wales and Victoria', which was published by the Australian Academy of Science in 1957. This report identified the massive scale of the soil erosion problem and its impact on catchment stability. It highlighted the incompatibility of burning and grazing practices with high altitude environments and Alec successfully argued that Alps catchments were more valuable for water catchment than for grazing. This document, along with Alec's activism and lobbying, was a turning point for the conservation of the Australian Alps.

In the years that followed removal of grazing, Alec established research into many critical issues with Dane Wimbush. Together, Alec and Dane investigated the impacts of grazing which established that sheep and cattle were selectively grazing forbs, reducing the diversity of flora and impacting soil stability. This work also found that once the forbs and grass inflorescences were consumed, animals quickly

ARCHIVING THE SCIENTIFIC LEGACY OF ALEC COSTIN

lost weight on a diet of mainly mature snowgrasses (Wimbush and Costin, 1979a).

Alec and Dane established transects in alpine and sub-alpine areas to measure recovery after the grazing had stopped. The transects were measured annually for twenty years and have been maintained ever since (Wimbush and Costin, 1979b and c). They are an incredibly valuable resource for tracking long-term vegetation trends.

Alec's field notes and data sheets are historically important, as is his large number of Kodachrome slides which are a record of the Alps in the 1950s and 1960s. These slides provide an important resource which may be used to interpret change in vegetation and landscapes in the Australian Alps (Figures 1, 2 and 3).

THE ARCHIVING PROJECT

The Australian Alps National Parks has funded a project to document and preserve these materials, with the help of Alec, to create an archive so future generations of scientists and historians can easily gain access to them. The University of Melbourne's eScholarship Research Centre (ESRC) has been engaged to conduct the project. The Centre started life in 1985 as the Australian Science Archives Project and has been responsible for ensuring material from many key Australian scientists have found appropriate archival homes (McCarthy, Morgan and Daniels, 2016). Like those earlier archiving projects, this project will focus on the conservation, protection and documentation of the material Alec compiled over his career, and will make the collection discoverable through the web publication of a guide to the collection. As the digitisation of archival materials (at digital preservation quality) is now more cost-effective than it has ever been, the project will seek to make digital facsimiles of as much of the collection as is feasible. Digitised materials are better suited for annotation and data extraction thus ensuring they are better suited to both existing and future alpine research.

The archival process involves several clearly defined activities that track the story of the materials from the world in which they were created, assembled and used, to the world of the archives. As archived material, Alec's work will be more widely discoverable and useful for a wide variety of research purposes.

The first project phase involves on-site surveys and negotiation to determine the extent of the materials. This includes noting time-span; content areas (especially those topics well represented); quantity of materials; condition of the materials; and

document forms. The documentation of this phase often includes digital photographs of the materials as found (Figure 4) and summary reports. Where possible, audio (and/or video recordings) of Alec Costin talking about the materials and reflecting on their context and value will be captured. These are useful for both the archivists and future researchers. This initial survey work was undertaken between 2016 and 2018.

Once the decision is taken to go ahead with the archival project, the second phase involves formally registering the materials designated for the collection. Again, this process documents the materials as found, preserving as much of the initial context, structure and arrangement as possible. In addition to the required formalised description (standardised archival metadata), digital photography, audio and video provide useful additional evidence of the process. A key outcome of this phase (described as 'Accessioning' by the ESRC) is the systematic labelling and numbering of all containers that hold the material. This allows the collection to be safely moved from its found location to a place better suited to the next phase of the archival process. It is also at this point that enough information should be available about the nature of the materials to determine the range of possible long-term archival repositories that would be interested in maintaining the collection. The 'Accessioning' of Alec's collection began in August 2017 with a focus on material that was already stored at the Office of Environment and Heritage in Queanbeyan (Figures 4 and 5). The archival team included Associate Professor Gavan McCarthy of the ESRC and Dr. Elizabeth James from the Herbarium of the Royal Botanic Gardens Victoria. The remainder of the accessioning was left to Wright and McDougall and the bulk of the collection was ready for transport to the ESRC in March 2018 where the next phases of the work would be undertaken.

In summary, the goal of the final phase is the documentation of the materials at the 'Inventory' level. This is the unit of documentation that will be utilised in the guide to the collection and needs to include enough detail to enable researchers of the future to discover relevant materials. The source (or provenance) of each 'Inventory Item' is systematically registered during this phase and each Inventory Item is linked with its relevant Accession unit. Later, Inventory Items will be grouped into Series to help researchers find related materials. A summary of the collection as a whole will then be prepared, including the story of the journey of the materials into their archival form. If digitisation is to be undertaken, it is best done once the Inventory Items have been



Figure 1. Photo comparison Kosciuszko National Park, Gungartan Range – 60 years of recovery.



**Figure 2. Photo comparison Kosciuszko National Park, burnt snowgum woodland
21 years of recovery.**

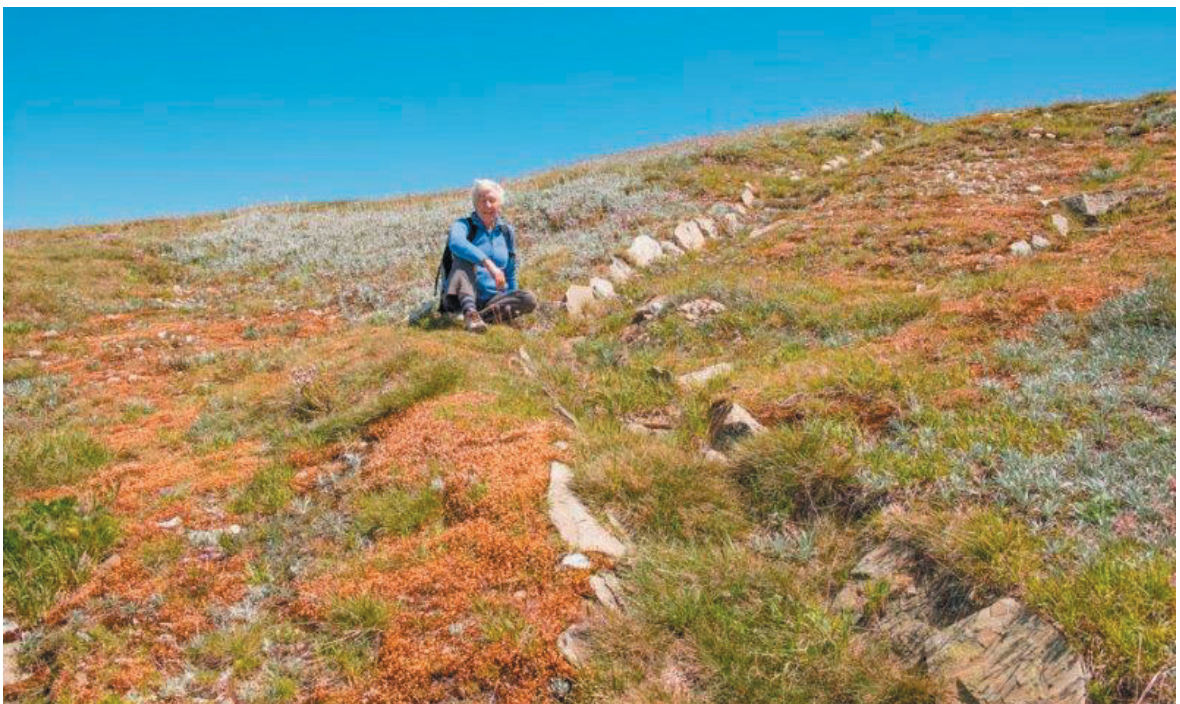


Figure 3. Photo comparison at Carruthers Peak – 55 years after the extensive Soil Conservation Service rehabilitation program in the alpine area of Kosciuszko National Park.



Figure 4. The Costin Collection as found.



Figure 5. Material sorted in to type for archiving

registered and defined. The final activity in this process is the publication of a web guide.

The undertaking of this project has provided a unique opportunity to conserve, protect and make accessible a significant collection from one of Australia's eminent scientists. To be able to do this with Alec means the context of and background to the collection can also be recorded, the opportunity of which is lost in so many archival projects. We have recently lost a number of Australia's outstanding

alpine ecologists and their decades of knowledge in the passing of Roger Good, Dane Wimbush and Max Gray. The ability to involve Alec will make the collection even more valuable and useful. Having Alec's material protected in the long-term and accessible for research of future alpine ecologists is critical for the ongoing protection of the Australian Alps.

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