

Final Project Report - June 2021

Australian Alps National Parks Cooperative Management Program 2018-2020	
Project Name	Protecting the Alps from weed threats: Behaviour Change for improving Hygiene
Total Project Budget (inc. multiple years)	\$10,000 (2018-2020) \$67,274 in-kind and cash contributions over 2018/19 and 2019/20
Australian Alps Priority issues addressed	<input checked="" type="checkbox"/> Invasive Species Management <input checked="" type="checkbox"/> Landscape-wide Catchment and Ecological Issues <input checked="" type="checkbox"/> Knowledge Management <input checked="" type="checkbox"/> Communications (inc. Cultural Heritage)
Project Achievements and Outcomes	
<p>Improving hygiene practices of Park users is a critical preventative measure for managing weed and pathogen spread in Australian Alps National Parks. This project draws on social-science theory and practice to understand Park user footwear cleaning behaviours and uses this information to design and trial behaviour change campaigns to underpin future hygiene programs to prevent weed and pathogen spread in the Australian Alps.</p> <p>While implementation of 2019-20 project activities was impacted by the Black Summer bushfires and Covid-19 pandemic, outcomes were successfully achieved in the 2020-21 season. Importantly, project partners were also able to leverage resources and achievements of this 2-year AANP project to secure significant <u>additional funding to progress this important work over the next 5 years.</u></p> <p>Key outcomes include:</p> <ul style="list-style-type: none"> Investigated Park user behaviours related to weed spread using Community Based Social Marketing (CBSM). The attached report and journal publication outline the results and the CBSM approach, which uses intercept surveys and questionnaires to ask Park visitors/trail users about their understanding and perceptions of footwear cleaning. <p>Respondents results were analysed to allow an understanding of social attitudes and behaviours associated with hygiene practices of Park users, including their perceived barriers to cleaning footwear. This was used as the basis to develop and test strategies to break down barriers associated with adopting footwear cleaning practices.</p> <ul style="list-style-type: none"> Installed and evaluated hygiene mechanisms (footwear brushing stations) at popular Kosciuszko National Park (KNP) trailheads (Charlotte Pass, Top Thredbo, Round Mountain). Observed hygiene station use/non-use and surveyed Park users. See attached 26 May 2021 update for further information and raw data. University of Wollongong (UoW) researchers Identified the benefits and barriers to footwear cleaning behaviours among Park users through multiple intercept surveys of visitors at high-use trailheads. Surveys occurred in stage 1 (2018-19; see 2019 report) and further surveys in the 19-20 and 20-21 seasons (see May 2021 update). Over 1000 Park users were surveyed, and the results are being used to inform strategy development. <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p><i>Associate Professor Nicholas Gill (UoW) conducting CBSM surveys with Park users at Charlotte Pass, April 2018</i></p> </div> </div> <ul style="list-style-type: none"> <i>Survey results indicate that there is a strong likelihood of track users practicing weed hygiene if sufficient equipment is made available.</i> 	

- **Developed preventative hygiene strategies to reduce weed and pathogen spread, including evaluation of footwear cleaning station use.** Research partners from University of Wollongong undertook observational and intercept surveys to monitor and evaluate the use of footwear cleaning stations at 4 high-use KNP trailheads. Partners tested social science-based messaging (e.g. normative vs descriptive messages) to encourage footwear brushing using fixed hygiene bays and tailored signage.

- Developed and tested tailored messages about hygiene to directly align with Park user values. These messages are designed to break down behavioural barriers that might prevent park users from adopting footwear cleaning practices. Signage associated with footwear cleaning stations displayed a variety of messaging, and UoW researchers assessed the uptake to determine which messaging encouraged footwear cleaning most effectively. and tested strategically designed motivational and instructional signage



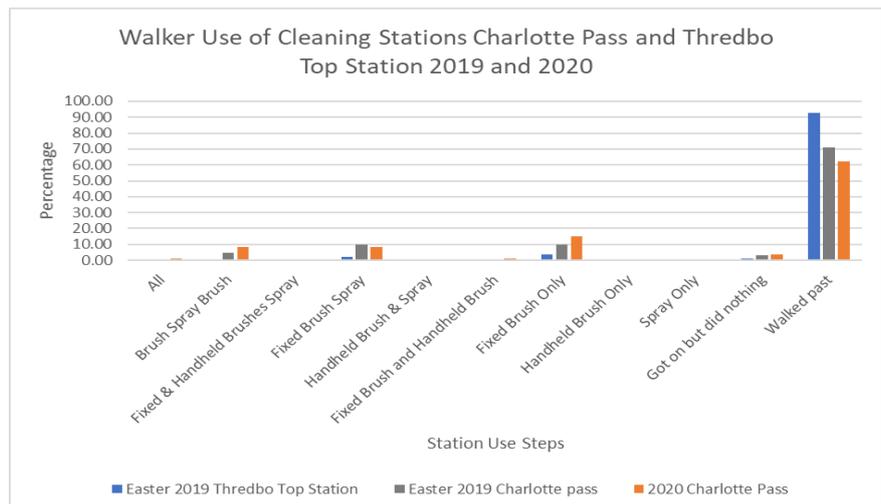
Normative (top) and descriptive (bottom) messaging tested on hygiene bay signage.

Analysis of survey results (ongoing under new projects) will allow identification of relative efficacies and cost effectiveness of behaviour change strategies prior to broad scale implementation. These could include providing a footwear cleaning bench and brush vs. installing large, costly footwear brushing stations.

Ongoing monitoring of hygiene stations is providing data for systematic assessment of the efficacy of strategies. This will inform best approaches for encouraging public to adopt desired hygiene behaviours (i.e. cleaning footwear before and after a walk).

Right: Preliminary data from 2019-20 observational surveys (see May 2021 update).

Note the large number of people observed walking past the station, illustrating the need for improved strategies to encourage behaviour change.



▪ **Improving cross-Alps connectivity in weed management; encouraging and enhancing consistent and co-operative management of Australian Alps national Parks.**

- UoW published one report (2018) and a journal article (2020), as well as an update (May 2021) with raw data from final surveys (attached). Further analyses are ongoing.

Nicholas Gill , Shaun McKiernan , Anna Lewis , Hillary Cherry & Drauzio Annunciato (2020): Biosecurity hygiene in the Australian high country: footwear cleaning practices, motivations, and barriers among visitors to Kosciuszko National park, Australasian Journal of Environmental Management, DOI: 10.1080/14486563.2020.1838352.
<https://doi.org/10.1080/14486563.2020.1838352>

Gill, N., McKiernan, S. & Annunciato, D. (2018). Hawkweed Community Based Social Marketing Project: A report on track users' boot cleaning practices and attitudes in the Kosciuszko National Park. Wollongong, Australia: University of Wollongong.
<https://ro.uow.edu.au/sspapers/4142/>

Reports and publications, as well as data, mechanisms and strategies on how to encourage boot brushing behaviours for park users are also being shared through the National Hawkweed Working Group, which comprises NSW, Victoria and ACT Parks partners. Hawkweed volunteers have assisted with surveys and they are also provided with information on project outcomes.

▪ **AANP funding used to leverage three new projects to continue this work into the future!**

Thanks to foundational support from this AANP grant, NPWS have negotiated several new research projects to progress this work and improve the use of social science in implementing hygiene and behaviour change initiatives:

- 1) A UoW Partnership Grant with the Faculty of Social Science awarded in 2018. An **additional cash contribution of \$10,000** from UoW matching the NPWS/AANP grant allowed further fieldwork and analysis by UoW students and researchers.
- 2) Continuation of surveys and analysis (**continued research**) via \$26K contributions from the NSW Environmental Trust Accelerating Hawkweed Eradication program.
- 3) Seed funding provided by AANP allowed NPWS and UoW partners to develop a robust research question and framework that we have leveraged into a **PhD Scholarship: Biosecurity hygiene in the Kosciuszko Region: Practice, Knowledge, and Dispositions among Recreational User Groups** (see attached summary), jointly funded from the NSW Environmental Trust and UoW Matching Scholarship.
- 4) NPWS staff also conducted an **experiment** to test the efficacy of hygiene bays for removing seed (dandelion seed) from boots, piggybacking on a similarly experiment by DPIE to test these bays for efficacy of removing *Phytophthora* spores. Based on preliminary data, it is possible that less costly, simpler hygiene bays could be equally effective at removing weed seeds. Results of both experiments are being analysed and will be distributed to AANP partners when completed.

Together, these projects will contribute to an improved, collaborative and strategic approach to hygiene practices across Alps National Parks. Key findings, captured in reports and journal articles, as well as from the ongoing projects, will provide Alps program managers with data, mechanisms and tools to implement strategic behaviour change strategies for improved hygiene.

The long-term aim is for regular hygiene practices to become an established 'social norm' - so that anyone visiting the Australian Alps can take action to prevent weed and pathogen spread to help protect alpine environments. Everyone can contribute by making sure you 'brush your boots' at the start and end of each walk!

Reporting against Project Deliverables

Item	Month/Year
Investigate weed hygiene attitudes and boot cleaning practices of trail users in KNP using a CBSM intercept survey approach	Surveys (2) completed April 2018
Analyse CBSM survey results to understand barriers and benefits associated with footwear brushing and develop hygiene strategies to prevent spread of weeds and pathogens in KNP	Analysis completed December 2018 (Stage 1 report and journal article attached)

Install trial footwear brushing stations and motivational signage at popular trailhead locations in KNP (including Thredbo top station and Charlottes Pass)	Stations installed: Nov to April 2019 Nov to April 2020 Nov to April 2021 (ongoing)
Observe and enumerate the extent of footwear cleaning by trail users at hygiene stations; conduct intercept surveys to assess social behaviours of trail users; analyse results using CBSM methods; and recommend strategies to break down barriers and improve adoption of footwear cleaning. NB: April 2019 surveys cancelled due to bushfires; March/April 2020 surveys cancelled due to Covid-19 restrictions. The ongoing project will conduct analysis and strategy development as it was not able to be completed during the term of this grant.	Surveys undertaken in April 2018, Feb/Mar 2019, Mar/April 2020 and April 2021 (raw data in attached May 21 Update) Analysis ongoing.
Provide Alps program managers with data, mechanisms and strategies to implement behaviour change for improved hygiene, including final report. NB: information provision will continue to Alps partners as the two new UOW hygiene projects (leveraged with this AANP project) deliver further results.	Journal article and updates attached. Ongoing.
Expenditure Summary (2019-20)	
University of Wollongong development of CBSM hygiene strategies, pilot testing and monitoring, and data analysis; develop reports/toolkits	\$2,000
University of Wollongong assistance with undertaking intercept surveys	\$2,000
Volunteer support – field training/ information days, catering, accommodation	\$1,000
Total	\$5,000 (2019-20)
Contributions Summary (cash input and in-kind) 2018-2020	
Alps Program budget input	\$10,000 (total 2018-20)
Financial input from other sources (list)	
NPWS – infrastructure: 4 X Weed hygiene stations 2 x Main Range/2 x Jagungal (\$13,800); 4 X Phytocleaning product (\$864); installation \$7066	\$ 21, 730
NPWS - Hygiene interpretation signs/graphic designer	\$ 1,000
Value of in-kind contributions	
NPWS: Boot brush Pilot studies, install brush down stations, monitoring, cameras, (staff time 10 days)	\$ 13534
NPWS: Volunteer support – field training/ information days, media (staff time 5 days)	\$ 4510
University of Wollongong (in-kind) contributions to study/ student vols	\$ 1500
ACT Parks – staff time, project development/media, hygiene station contributions/advice/ installation of hygiene stations in Namadgi NP	\$ 5000
Parks Victoria - Staff time – Participate on Steering Committee, review and comment on strategies and documents, teleconferences	\$ 3000
Vic DEDJTR — Staff Time –approx. 3 days (\$1000 in-kind); review and comment on strategies, organise media, teleconferences.	\$ 2000
NSW DPI – Biosecurity Community Weeds management – Staff time, CBSM assistance	\$ 5000
NPWS/University of Wollongong Partnership grant (this grant provided by UOW allowed us to leverage an additional \$10,000 for the project using AANP and NPWS existing committed funds)	\$10,000
Total	\$ 77,274 (2018-2020)
Communication	
The project operated by integrating with Hawkweed Eradication Programs in ACT, NSW and Victoria. Messaging was provided to target audiences (staff and volunteers) engaged in Hawkweed Eradication program, who recognise the value of hygiene in preventing weed spread. As this research progresses, we will continue to communicate via these existing structures and provide project outcomes via cross-Alps agencies.	

In addition to the publications provided here, we will continue to deliver information and products from this work to AANP park managers via the AANP network and to be included in AANP on-line repository. A presentation can also be provided at future AANP forums, if desired.

Other communication outcomes include:

- Conference presentation (~80 attendees): *Track users' footwear cleaning practices and weed hygiene attitudes in Kosciuszko National Park*; Nicholas Gill, Shaun McKiernan, Drazio Annunciato, Hillary Cherry, and Anna Lewis NSW Weeds Conference, Newcastle 2018;
- UoW media release and corresponding online article: *On the hunt for invasive hawkweeds*. <https://stand.uow.edu.au/hunt-for-hawkweeds/> *Two students were part of a team from the University of Wollongong who travelled to Mount Kosciuszko, the frontline in the fight against this invasive species.*
- NPWS staff report to the national Environment and Invasives Committee Weeds Working Group, comprised of weed managers from all Australian jurisdictions, resulting in further partnerships to progress hygiene behaviour change work.

Project Measures – ongoing outcomes from the project

Further reports and journal articles will be prepared and circulated to cross-Alps agencies. Ongoing information sharing about successes or challenges of footwear cleaning stations and user uptake strategies will be shared via AANP and the National Hawkweed Working Group to ensure improvement. The aim is a long-term reduction of weed seed and pathogen spread throughout Australian Alps National Parks. In future, this approach can also be applied to bike cleaning stations with minimal further investment. The ultimate outcome will be a long-term change in the 'social norm' – such that everyone starting (or finishing) a walk, will be motivated to clean their footwear.

Many thanks to the Australian Alps National Parks Liaison Committee for your support of this work.

Project participants

Project Manager	Hillary Cherry, NSW NPWS, Senior Weeds Officer, Pest and Weeds Unit hillary.cherry@environment.nsw.gov.au Ph: 02 9585 6587; Mobile: 0427 104 448	
Project Steering Committee Members	Keith Primrose (Parks Vic – Victorian Hawkweed project coordination and liaison), Jo Caldwell (NPWS – Hawkweed Project Coordinator / Volunteer engagement) Steve Taylor (ACT Parks – project support, communication and ACT liaison), Mel Schroder (NPWS – advice on volunteers and interactions in Kosciusko Natl Park), Angela Constantine (DEDJTR-Victoria hawkweed program liaison, project support)	
Prepared by: Hillary Cherry On behalf of the project steering committee	Date 30 June 2021	Signature 

ATTACHMENTS:

1. **2019 - UoW report on track users' boot cleaning practices and attitudes in the Kosciuszko National Park**
2. **Gill et al 2020 - Biosecurity hygiene in the Australian high country (journal article)**
3. **UoW update Biosecurity hygiene project May 2021**
4. **Biosecurity and recreational visitors to the Kosciuszko region PhD project.**