

Mountain Protected Areas UPDATE

March 2023 # 117



Hokia ki o maunga, kia purea koe i nga hau a Tawhirimatea.”
Riripeti wipes tears from her eyes. *“Return to your sacred mountain, your spiritual birthplace, and allow the gentle winds to rejuvenate you for the road ahead.”* Riripeti Paine referring to survivors of Cyclone Gabrielle (NZ). This could equally be a message to the world.



Páramo sky island, Cajas National Park, Ecuador photo: *Gwendolyn Peyre*

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A note from the editor

Welcome to the 117th Mountain UPDATE. For those of us not directly impacted by the devastating human tragedy in Turkey (Türkiye: tur-key-YAY) and Syria it seems impossible to comprehend; although I am sure all extend their heartfelt sympathy, and support where possible.

As often happens after huge environmental disasters such as earthquakes analysis of both the event and response takes place.

Although not within the scope of the Mountain Update, as fault lines and mountain ranges often go together, a couple of pieces on earthquakes/landslides have been included.

Please keep reading for many other mountain related issues and stories from around the world. A big thank you to those that have provided stories; there is even a wombat cartoon at the very end!

March 4 2023

Mountain Update is a quarterly newsletter distributed to members of the Mountain Protected Areas Network.

The Mountain Specialist Group acknowledges the First Peoples and Nations of the lands and waters where we live and work and we pay our respects to their Elders past, present and emerging. We acknowledge and respect the deep spiritual connection and the relationship they have to Country.

The views expressed in this UPDATE are not necessarily those of the IUCN WCPA.

IUCN WCPA Mountain UPDATE # 117 Editor: Gillian Anderson peopleinnature@bigpond.com

From *People and Mountains* around the world:

Global



High Atlas Morocco

30% X 2030 Kunming-Montreal Agreement at COP15

Extracts from Sierra Magazine Lindsey Botts December 2022

On December 19, over 190 United Nations countries [agreed to a framework](#) to safeguard wildlife and live in greater harmony with nature. The outcome, known as the Kunming-Montreal Agreement, represents one of the most significant steps toward halting and then reversing the loss of wildlife by 2030.

Among some of the targets that were agreed to include **a pledge to protect and conserve 30 percent of Earth's land, freshwater, and oceans by 2030**, a critical goal that at least 120 nations had already committed to, including the United States, which is not a member of the Convention on Biological Diversity .

Additionally, the countries vowed to respect the rights and input of Indigenous communities, eliminate subsidies that are harmful to nature, and to gradually increase the amount of finance for nature conservation to \$200 billion by 2030. A part of that funding will come from the Global Environment Facility, a multilateral, United Nations-style funding mechanism for conservation projects.

Next comes the more arduous task of implementing the plans. The lack of political will to put in place the previous biodiversity framework, called the Aichi Targets, was primarily seen as its biggest failure. More than a decade after that agreement was reached, none of those targets have been reached. According to people close to this year's negotiations, a dedicated monitoring and review process will hopefully help bolster countries' efforts to put together the biodiversity strategies and plans needed to reach the targets.

Be part of the Target 3—30 X 30 implementation

From Nigel Dudley

The Target 3 commitments (above) go a long way beyond increasing the area under conservation, with elements of effectiveness, equity, human rights and landscape approaches. The emphasis has also broadened, with inland waters explicitly mentioned and, more generally throughout the GBF, a move to include a wider range of habitats than before.

Implementing Target 3 will be a major preoccupation for conservation organisations.

To this end, **WWF US is developing a guide for the Global Environment Facility (GEF) on implementation of 30x30**. This will be supported by an online resource of tools and data, funded by The Nature Conservancy. It also builds on an existing [review of evidence](#) produced with funding from the UK government (DEFRA). WCPA, DEFRA and TNC are all closely involved in both processes going forward. We are keen that the guide and associated resources build on extensive consultation with a wide range of stakeholder groups. The authors are therefore talking with and seeking input from a multitude of actors, including many within WCPA.

We'd love to hear from the mountain community. If you've got ideas, tools, opinions for either the contents of the guide or the associated website, please get in touch!

Nigel Dudley: nigel@equilibriumresearch.com

As reported previously, the Mountains Specialist Group has written a paper and developed a tool to identify priorities for protecting mountains. This is based on a range of mountain values that's are currently poorly protected and designed to support countries and regions as they consider 30*30. We hope our work will contribute to this important WWF guide.

A video of presentation of the project to the IUCN WCC in 2021 can be seen here: [Protecting Mountains: where should the next mountain protected areas be? - YouTube](#)

The paper and decision tool can be seen here: [IUCN WCPA Mountain Specialist Group](#)



Global (cont.)

Earthquakes

Extracts from *The Conversation February 2023*—Dee Ninis Earthquake Geologist, Monash University & Matthew Gerstenberger Seismologist, GNS Science

While earthquake scientists are not able to predict earthquakes, they are able to forecast them.

Earthquake forecasts are built on observations of past earthquake activity, which may stretch back decades, centuries or even thousands of years. These observations are analysed and modelled, and we use our understanding of the physics of earthquake occurrence to determine the chances of future seismic activity.

When looking at catalogues of the time, location and magnitude of past earthquakes, it becomes very clear that damaging earthquakes are more likely to strike along the boundaries of the tectonic plates that make up Earth's crust than in the interior of those plates.

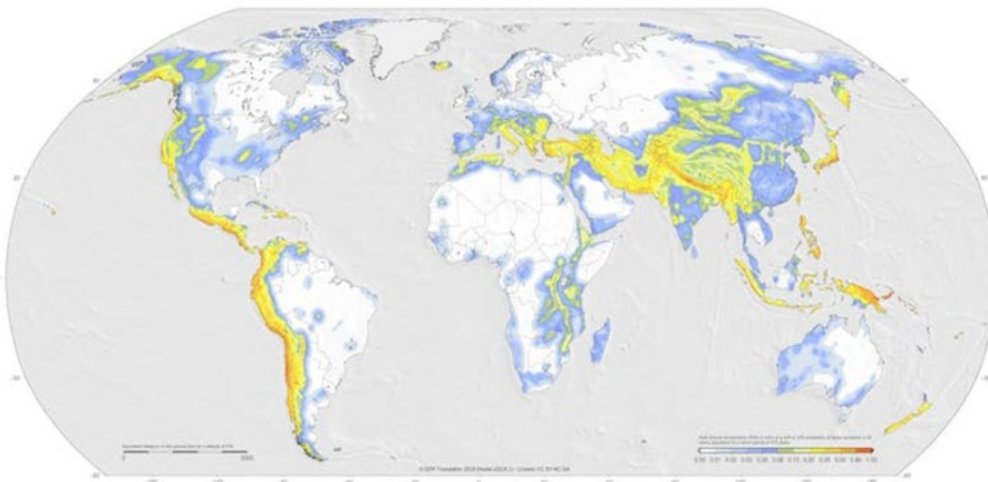
In recent decades, the installation of worldwide networks of *seismic recorders* has also allowed the detection of much smaller quakes and tremors – including events too small to be perceived by people. These data have revealed important relationships between the relative numbers of small and large earthquakes which underpin earthquake forecasting.

Observations and analysis of major earthquakes from around the world over the past century or more has also helped us to understand their *aftershocks*. These shocks diminish over time in a statistically characteristic way.

Geological investigations extend the record of major earthquakes beyond those captured in earthquake catalogues. These studies look for evidence of ground-rupturing earthquakes along a particular fault.

Our best long-term forecasts use data from earthquake catalogues and geological studies, combined with earthquake behaviour patterns and other knowledge such as geodetic models – which use GPS networks to tell us how Earth's surface is under strain and moving as tectonic plates shift.

These forecasts typically provide not just the magnitude and location, but also the range of the intensity of ground-shaking from future earthquakes.



A map of global earthquake hazard showing regions of low earthquake ground-shaking hazard (cool colours) and regions of high hazard (warm colours). GEM / Pagani et al. 2018;

Analysis of rocks along the **Alpine Fault** (NZ) has provided strong evidence that, over the past 8,000 years or so, one ground-rupturing earthquake of around magnitude 8.0 has occurred roughly every 300 years. The most recent major rupture on the Alpine Fault was in 1717, more than 300 years ago.

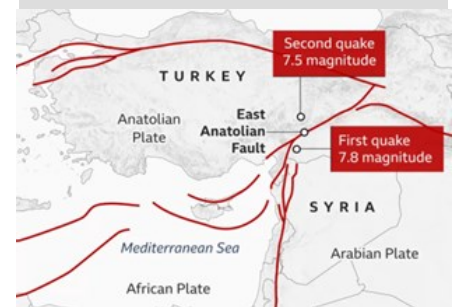


The linear surface expression of the Alpine Fault, viewed along the west side of Red Hills, Wairau Valley, Aotearoa New Zealand. There is a 75% chance of a major earthquake on this fault in the next 50 years. Lloyd Homer / GNS Science

Turkey—Syria Earthquake

The first earthquake was big - it registered as 7.8, classified as "major" on the official magnitude scale. It broke along about 100km of fault line, causing serious damage to buildings near the fault.

This was a region where there had not been a major earthquake for more than 200 years or any warning signs, so the level of preparedness would be less than for a region which was more used to dealing with tremors. **BBC News**



America—south

How will climate change affect our tropical sky islands?

From **Gwendolyn Peyre** *University of the Andes*

The Tropical Andes hotspot is the most biodiverse hotspot on Earth. It is also one of the most sensitive to climate change, especially at high elevation where temperatures could increase by 4°C before 2100. The highlands in Venezuela, Colombia, Ecuador and northern Peru belong to the páramo region, an archipelago of sky islands known for its amazing flora of almost 5,000 plant species, of which about 70% are endemic.

Climate change impacts are already visible on the páramo and include glacier retreat, environmental moisture decrease, affectation of the water cycle and changes in soil productivity among others.



Páramo sky island, Nevados National Park, Colombia

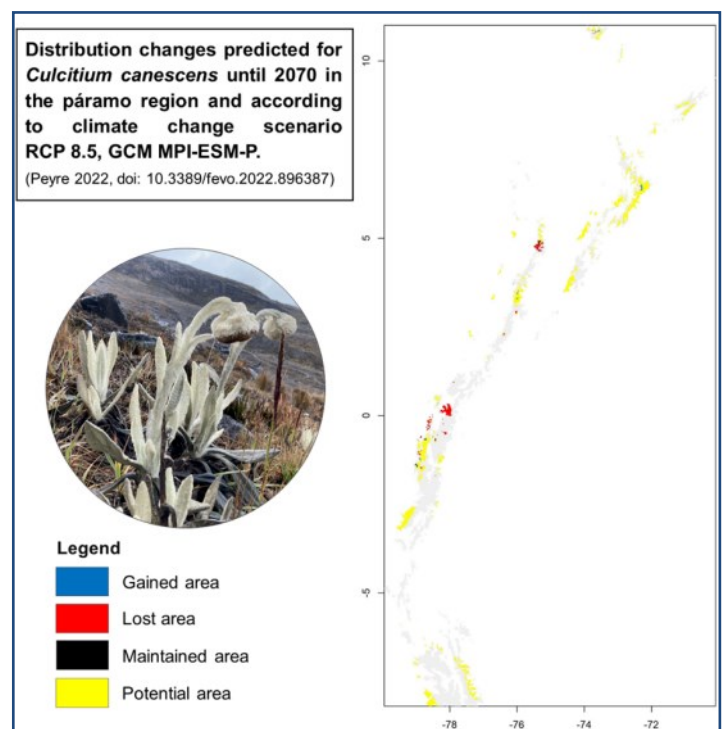
Will páramo plants be able to track isotherms to survive? Or will they be forced to rely on their tolerance and adaptative capacity to even have a chance? The answer resides in their ability to do both and fast.

From the migration standpoint, we know that plant species can progressively shift their distribution depending on their dispersal capacity and the availability of both environmentally suitable areas and adequate biotic conditions, such as richness capacity and species interactions. Similarly to other high mountain floras worldwide, Peyre (2022) predicted a general upslope shift for páramo plant species and a net area gain of 15% across the studied flora by 2070 (image R).

In addition, a species will have the equivalent of 23% of a current distribution available but not accessible in 2070 due to **dispersal limitations** (Potential area). Underperforming dispersal is a common trait of alpine floras globally, and it means that these species will often be disadvantaged against more competitive and faster dispersing species, for instance invasives.

This study also predicted that 8% of said flora would be extirpated from the páramo, 40% of which are endemics with high risks of extinction. The higher most flora of these sky islands is in fact the most vulnerable and with little capacity to expand and shift their distribution over time. When looking closely in Ecuador, Peyre et al. (2020) established that said flora will surely be strongly affected before the end of the century, not only as species but also in their plant communities. The creation of novel ecosystems is already underway, causing for Ecuadorian summits such as Antisana, Pichincha and Cayambe to likely lose significant amounts of their native flora to lower elevation alpine species and invasives by 2100.

The role of protected areas in the region is crucial to slow these changes down and operate urgent and meaningful conservation and restoration of the páramo flora and ecosystems.



Peyre G. 2022. What does the future hold for páramo plants? A modelling approach. *Frontiers in Ecology and Evolution*, 10: 1-16. Doi: 10.3389/fevo.2022.896387

Peyre G, Lenoir J, Karger D, Gomez M, Gonzalez A, Broennimann O, Guisan A. 2020. The fate of páramo plant assemblages in the sky islands of the northern Andes. *Journal of Vegetation Science*, 31(6), 967-980. Doi:10.1111/jvs.12898

America—north

Blueberry River First Nations Treaty 8 Rights

From Yellowstone to Yukon (Y2Y) News January 2023

An announcement from the Blueberry River First Nations and the Government of British Columbia, (B.C.) Canada on the signing of an implementation agreement is positive and welcome news for upholding Treaty Rights and the collaborative stewardship of water, lands and resources in Treaty 8 Territory in north-eastern B.C.



Treaty 8 territory includes parts of Alberta, Saskatchewan, British Columbia and the Northwest Territories. (CBC News Graphics)

“Blueberry River First Nations members have stewarded their traditional territories since time immemorial, protecting both nature and way of life in the face of cumulative industrial disturbance,” says Tim Burkhart, B.C. program manager with Yellowstone to Yukon (Y2Y) Conservation Initiative.

In June 2021, a B.C. Supreme Court decision found the B.C. government had infringed upon Blueberry River’s Treaty 8 rights — specifically, by allowing the territory, wildlife and their habitats to be drastically impacted by decades of unsustainable forestry, oil and gas, agriculture, mining and hydroelectric development, including Site C Dam.

The B.C. government and Blueberry River First Nations have reached a historic agreement that will guide them forward in a partnership approach to land, water and resource stewardship that ensures Blueberry River members can meaningfully exercise their Treaty 8 rights, and provide stability and predictability for industry in the region.

“This agreement provides a clear pathway to get the hard work started on healing and restoring the land, and start on the joint planning with strong criteria to protect ecosystems, wildlife habitat and old forests,” said Chief Judy Desjarlais of the Blueberry River First Nations. “With the knowledge and guidance of our Elders, this new agreement will ensure there will be healthy land and resources for current and future generations to carry on our people’s way of life.”

Treaty 8

On June 21, 1899, the eighth Treaty between First Nations of Northern Alberta, Northwestern Saskatchewan, the Southwest portion of the Northwest Territories, and the Queen of England was signed.

It was later followed by Adhesions in the Northeastern portion of British Columbia. The true spirit and intent of this Treaty was based upon principles of law, respect, honesty and acceptance, as told by our Elders past.

Treaty rights include rights to areas used for hunting, fishing, cultural activities and burial grounds within all of Treaty 8. Wherever a Treaty 8 member is in Treaty 8 territory, he or she has rights within the whole territory, not just his or her own traditional land.



Ancestors of the BRFN occupied the land from the Rocky Mountains into northwestern Alberta where the Peace River flows for millennia.

Blueberry River FN web site

The impact of the "modern economy" on Blueberry Treaty 8 rights stated that "projects approved between 2013-2016" included:

- 2,600 oil and gas wells
- 1,884 kilometres of petroleum access and permanent roads
- 740 kilometres of petroleum development roads
- 1,500 kilometres of new pipelines
- 9,400 kilometres of seismic lines, and
- harvesting of approximately 290 forestry cut blocks. (David Suzuki Foundation)

America—north

Recreational Trails & Wildlife: Canada

From Y2Y News January 2023

A [new report released by researchers](#) at University of Northern British Columbia (UNBC) and Yellowstone to Yukon Conservation Initiative (Y2Y) shows at least 24 per cent of trails on public land in Kananaskis Country and B.C.'s Upper Columbia are not documented by governments.



Kananaskis Valley photo: *off track travel*

Today, people get information on hiking trails from a variety of sources including paper maps, internet and smartphone apps. This wealth of information can be a boon to recreationists, but the myriad sources make it difficult for government managers to track in terms of available data types and for public safety. In 2022, according to Kananaskis Country's Public Safety, emergency teams responded [to more than 300 incidents of recreationists getting lost](#) while using apps designed for trail use.

This initial study documenting trail type and recreation use will also serve as a building block to further understand relationships between recreationists and wildlife.

Past studies suggest behaviour of wildlife changes in response to certain types of recreation. By understanding which trails experience heavy overlap with important wildlife habitats, recreationists can decrease competition with wildlife for space while also decreasing potential for conflicts between user groups.

"Now, more than ever, people are exploring the outdoors. Research like this will lead to better recreation planning, creating higher quality experiences for people while ensuring that wildlife also have what they need to thrive," says Doris Hausleitner, a wildlife biologist from Nelson, B.C.

Grizzly bears in the Northern Rockies: USA

From Sierra Club News 2023

The Biden administration is deciding whether to remove Endangered Species Act safeguards for grizzly bears in the Northern Rockies—a move that wildlife advocates warn is premature and would jeopardize the bears' full recovery. The US Fish and Wildlife Service announced that it would review delisting proposals earlier this month after receiving petitions from Idaho, Montana, and Wyoming requesting that those states' fish and game departments be allowed to take over management of the iconic carnivores.

Conservation groups and wildlife advocates quickly objected, arguing that those states have not proven reliable stewards of another iconic species—the gray wolf—and that they shouldn't be entrusted with managing the region's isolated pockets of grizzly bears.

In their petitions, the governors of Montana and Wyoming both argued that grizzly bears in the region have met the recovery criteria and no longer need federal protections.

Scientists and bear advocates have a different opinion. They say that while the number of grizzlies in the region have increased, true species recovery is about more than numbers. Chris Servheen, a retired USFWS grizzly bear recovery coordinator in Montana, says real recovery requires keeping populations healthy and interconnected to ensure genetic diversity.



The Greater Yellowstone and Northern Rockies regions, blessed with Yellowstone, Grand Teton and Glacier National Parks, are renowned for their expansive wildlands and iconic wildlife. That includes grizzly bears, gray wolves, and large herds of bison and elk. photo: *Sierra Club*

Mount Namuli's bat: Mozambique



Only fragments of the moist evergreen forest growing on Mount Namuli's flanks remain, and the bats, which were collected by a research team more than a decade ago in forests higher than 1,200 m (3,900 ft), may soon be without a home. Image courtesy of Julian Bayliss.

From Mongabay News February 2023

A forest that harbors Mozambique's most recently identified species of mammal could disappear within the next two years as small-scale farmers fell trees to grow potatoes and other crops.

The Namuli horseshoe bat (*Rhinolophus namuli*) is named after Mount Namuli, a granite mountain, or inselberg, in the country's northern Zambezia province. At more than 2,400 meters (7,900 feet), it's the country's second-highest peak. But only fragments of the moist evergreen forest growing on its flanks remain, and the bats, which were collected by a research team more than a decade ago in forests higher than 1,200 m (3,900 ft), may soon be without a home.

"Mount Namuli is severely threatened, and the natural forests have been heavily degraded, even since we first went there in around 2006," said Julian Bayliss, the co-author of a recent paper in *Acta Chiropterologica* describing the new species.

"Since that time a lot of the forest, maybe 75%, has been destroyed."

Farmers clear-cut small patches of forest to access the rich loamy soils beneath it that are perfect for growing so-called Irish potatoes. But the soil's fertility only lasts for three to four years, after which the farmers move on to another patch.

Conservation group [Legado](#) and partners are working to create a community conservation area and secure land rights for many of the roughly 24,000 people who live around the mountain and use its resources.

Nearly 5,000 people now hold title to their land, with 69% of those deeds issued in the names of women, according to the group's website. These interventions appear to be bearing fruit: annual deforestation has dropped to around 2% since a peak of more than 8% in 2015-2018, according to data published in 2020 by Legado's partner organization, [Nitidae](#).

Initial report: [Conservation & Biodiversity Report 2009](#)

Timberlake, J.R., Dowsett-Lemaire, F., Bayliss, J., Alves T., Baena, S., Bento, C., Cook, K., Francisco, J., Harris, T., Smith, P. & de Sousa, C. (2009). Mt Namuli, Mozambique: Biodiversity and Conservation. Report produced under the Darwin Initiative Award 15/036. Royal Botanic Gardens, Kew, London.

Australia—Oceania

Research in the Australian Alps is on the move

From Deirdre Slattery

The Australian Institute of Alpine Studies held its regular get-together of mountain researchers in Kosciuszko National Park (Australian Alps) in December 2022.

Gnublum John Dixon opened proceedings with a smoking ceremony. His succinct message was for recent Australians to join the Traditional Owners in paying attention to and showing respect for country, particularly for 'their' personal country.

One day was spent in brief reporting sessions by 23 researchers and the launch of the long-awaited **Australian Mountain Research Facility by Adrienne Nicotra of the Research School of Biology at Australian National University (ANU)**. Professor Nicotra spoke of the changing face of research. The days when Ralph Slatyer was able to take his family on holiday with him whilst conducting field work have moved to today's quick visits to multiple sites to collect data and check high tech equipment.

The common thread is the love the researchers have had of the mountains and their joy in making a difference through their work.

Mick Pettit responded on behalf of the NSWNPWS. He spoke of the importance of co-operation between research and management and of recognition of the past and present in shaping decisions for the future. The second day was spent in field trips to various monitoring locations.

A highlight of the gathering was the range of topics and approaches covered. Today's researchers are much more specialised, building on the basic platform established by these pioneers. In what have been rather dark times for Kosciuszko National Park, the 2022 gathering featured the steadfastness shown by the 'old hands' Ken Green, Peter Jacobs, Ian Pulsford, Mel Schroeder and Susannah Venn, and the energy and urgency shown by newer, younger researchers from ANU, Deakin, La Trobe, RMIT, Monash, Sydney, Canberra, Griffith and University of the Andes. Both groups were energising and positive.

The researchers reported on their work in understanding dieback in snow gums, in the capacity for adaptation in plants and animals, of carbon emissions from peat bogs resulting from feral horse trampling, the behaviour of water below the surface and techniques for dealing with the vast array of data now able to be gathered from multiple monitoring sites from a local to a global scale. Ceramicist Cathy Franzi showed images of her exquisitely decorated vases, her use of alpine plants showing how science can inform art to carry the story of the aesthetic joy of the Australian Alps to wider than scientific audiences.

Thanks to Susannah Venn, whose capable management of the two days' program gave everyone a feeling of belonging in the important work of protecting our unique mountains.



Adrienne Nicotra & Peter Jacobs (Chair Mountain Specialist Group) at launch of Mountain Research Facility. The Mountain SG & Mountain Research Facility (ANU School of Biology) have formed a partnership to help promote importance of mountain research & conservation.

Science for adaptive management in the high country www.amrf.org.au

Foundation work of Alec Costin

Deirdre Slattery briefly outlined the extraordinarily wide-ranging work of Alec Costin and colleagues in the 1940s -70s. Then, the foundation was laid for better understanding of the Australian Alps as unique and precious in world terms and in seeing them as a place of both continuity and change.

Costin's team did this through their innovative work in geology and geomorphology, soils, restoration techniques, water production and yield.



Europe

Complexity of history, climate, forests and grazing in the alps: Italy

Adapted from *European Wilderness Society (EWS) January 2023 Grazing in the Stilfser Valley* author Viera Vydarena

The Stilfser Valley and small village of Stilfs (population around 1,000) is in the western corner of South Tyrol below the high mountain scenery of the **Ortles Mountain massive** (3905 m). Since ancient times, local people used the surrounding mountains to earn a living, either by working in the forest or grazing the meadows.

The earliest signs of human presence in Stilfser Valley goes back a long time. The first documented historical records come from the Roman period when they occupied enclaves in the southwest corners of the Alps.

The very first archaeological records indicate that high-altitude pastures on southern slopes of the Alps began around 4,500 BC. The following discovery of remains from alpine dairy huts, and other archaeological studies showed that simple alpine farming began already in the Bronze Age (4,000-3,000 BC).

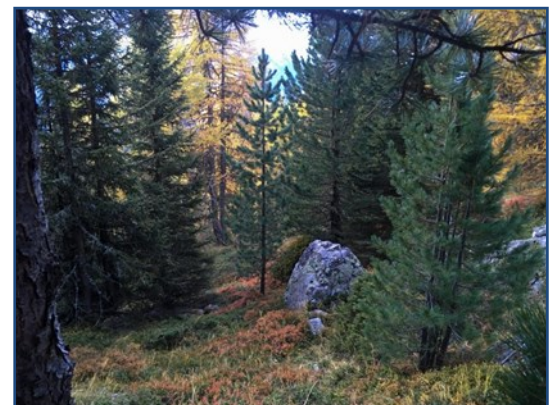
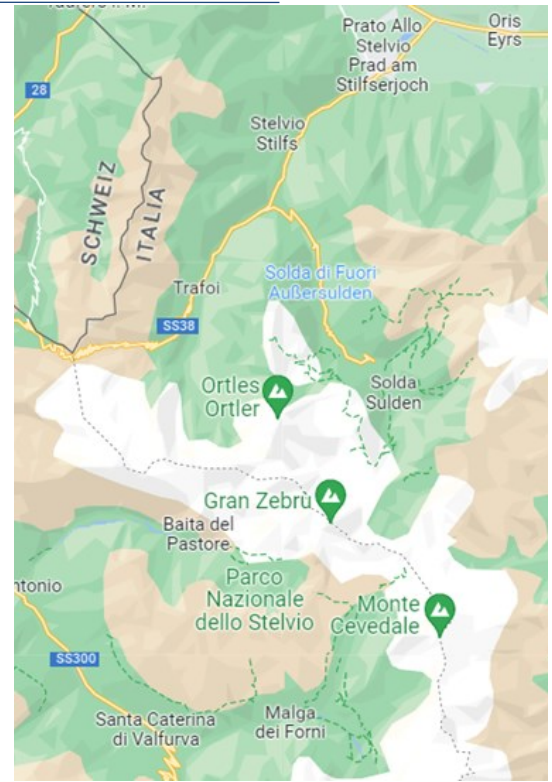
Several centuries later, as the number of people increased, their impact became more significant on surrounding forests as extensive pastures were created.

In the last several decades grazing is on a slow decline in many parts of the Alps, including Stilfser Valley. The [decreasing pressure of human-managed grazing](#) is accompanied by a slow and often spontaneous natural regeneration of the forest.

Currently the fragments of forest are slowly climbing up to the height, where it is thought to have grown 2,000 years ago.

This process however is combined with a growing impact of climate change, so forests are very likely climbing higher than in the past. Currently we can find the individual trees of pinus cembra or larch almost around the peak of **Mt. Chavalatsch** (2,999m)

It is not easy to predict what is going to happen with a traditional activity such as grazing in this part of the Alps. To maintain a traditional model of grazing as inherited from the past will be not easy in the coming decades. As well as the commitment and interest of the local people, support from local and national government, European Union and local and international NGOs will be necessary to implement a sustainable model of alpine pasture applicable now and into the future.



That previous forest consisted of spruce, pinus cembra, larch, junipers and rhododendron. Forest grew 500-600 m higher than today. The higher-lying dwarf pine most likely formed a dense belt up to the summit ridges. Photo: EWS



Extensive forests were removed and replaced by alpine meadows. Photo: Ortles alps

Conclusion

One alternative is to adopt a grazing zoning system. In this newly developed zoning system, it is possible to identify the zone with the traditional grazing, transitional zone and zone without any human activity. Model areas which are already developed using the zoning system in some parts of the Alps, can be used as a motivation for this process.

Western Asia

Taurus Mountains: Turkey



TERRITORIES OF LIFE in West and Central Asia & the Caucasus: diversity, present status, and threats: Extract from <https://report.territoriesoflife.org/national-and-regional-analysis/west-central-asia/> Source: Engin Yilmaz, Yolda Initiative

In Turkey mobile pastoralism (nomadic pastoralism and transhumance) is a major traditional practice that has been shaping the country's landscapes for thousands of years.

Even though mobile pastoralism in Turkey has suffered, there are still thousands of nomadic pastoralist families, particularly among the Yörük and Koçer communities, who still maintain wisdom, a keen knowledge of the landscapes in which they move, emerging from thousands of years of accumulated experiences. The practice exists in many different forms in Turkey.

It has much to offer not only for conserving nature but also for the cultural diversity and heritage of the country.

Sarıkçeçili Yörüks, a nomadic pastoralist community, currently with more than 150 families who have been maintaining this livelihood for centuries in Turkey, is a significant case. Migrating hundreds of kilometres on foot with their goats between their wintering site at the shores of the Mediterranean and their summering sites in Central Anatolia beyond the **Taurus Mountains**, they conserve and enrich nature, contribute to local economies, produce high quality and healthy food, and contribute to the fight against climate change.

The area they cover includes very diverse ecosystems such as rangelands, maquis, and shrublands, Mediterranean forests, alpine ecosystems, riverine systems, coastal and inner wetlands, steppe ecosystems, etc. Sarıkçeçili Yörüks have played a critical role as a major agent in the evolution and maintenance of these varied ecosystems, including with their migration routes functioning as ecological corridors ensuring connectivity between them and thus avoiding fragmentation.

Yet since the end of the 17th century, but particularly in the last two centuries, nomadic pastoralist communities have suffered from historic injustices in Turkey. These include dispossession (either by expropriation or privatisation) of the rangelands and migration routes they use, thus denial of their rights (including usufruct rights) to their traditional lands and resources, and prevention from using them.



Like other nomadic pastoralist communities in Turkey, their culture and practices are based on the understanding that their survival and that of future generations depends on nature. Thus, they have a deep sense of responsibility and connectedness to the landscapes they manage.

Central Asia—Himalayas

Landslide Monitoring & Forecasting: Nepal



From ICIMOD News January 2023

Photo: Sudan Bikash Maharjan/ICIMOD

Nepal faces a double whammy of floods and landslides every year. Often considered a secondary hazard, landslides are usually triggered by incessant rainfall falling upon hilly and unstable slopes in Nepal’s predominantly mountainous terrain. As Nepal lies at the cusp of the Indian and Tibetan tectonic plates, it is more susceptible to earthquakes and resulting landslides. Unplanned road building and construction along unstable mountain slopes on relatively young mountain terrain compound this problem further.

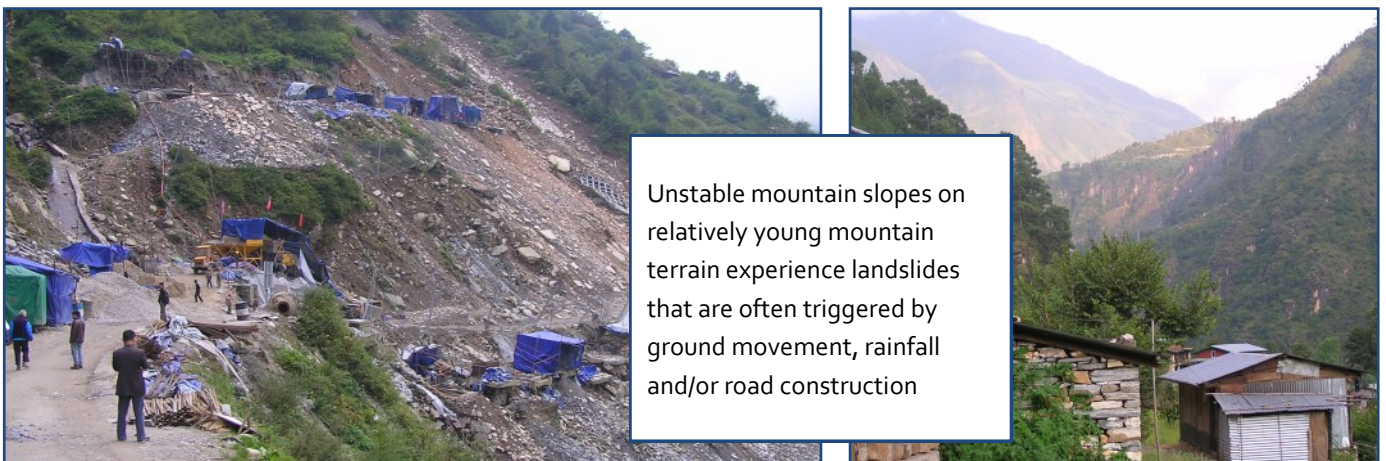
Despite the damage incurred by landslides each year, there is limited information on the Nepal’s historical landslides, land surface characteristics, vulnerability, and rainfall patterns. Availability and open access to such information can help characterise landslide hazards and risks to decision-making and disaster risk reduction processes.

We are looking to plug this information gap by working with NASA’s Goddard Space Flight Center (GSFC) to develop a landslide mapping system and a customisable landslide forecasting system for Nepal.

Researchers at NASA GSFC have been using a multiscale approach to map and forecast landslides at the local, regional, and global levels. To calculate the relative likelihood of a landslide occurring, GSFC’s Landslide Hazard Assessment for Situational Awareness ([LHASA](#)) model incorporates global landslide inventories with precipitation data within a machine learning framework. The model provides a near-real-time overview of landslide hazards worldwide and has been tried and tested along the US Pacific Northwest and the Mekong region.

Landslides ravage lives and livelihoods across the mountains and disrupt traffic across snaky mountain roads in-country, bringing movement to a standstill and delaying any relief and rehabilitation efforts.

In 2022 alone, Nepal’s Disaster Risk Reduction Portal reported 327 landslides across Nepal, causing 99 deaths and adversely affecting 992 families; 19 people went missing, and 88 were injured. Government estimates put economic losses from landslides in 2022 at around NPR 88 million.



Friendship Highway 2009

Scree and Talus

This year's theme for the [International Day of Forests](#) (IDF) on 21 March is 'Forests and health', with the slogan 'Healthy forests for healthy people'. Please visit the International Day of Forests [website](#) for [key messages](#), [logos and banners](#) and [events](#). If you are planning to organize an event, let FAO Forestry know!

They will add your event to the [gallery of events](#) around the world.



[Long Distance Trails](#) *From Pedro da Cunha e Menezes Chair, IUCN Advisory Group on Long-distance Trails*

A recently renewed Task Team of the World Trail Network is interested in uniting with the IUCN Advisory Group on Long-distance Trails towards advancing a common understanding of the value of long trails to achieve conservation outcomes. Trails have a unique and important role. The IUCN Advisory Group and the World Trail Network have a unique opportunity to unite efforts and develop a framework to understand the value of long-trail conservation strategies and investment.

Our primary interest is to complete a white paper on Trails and Conservation ([Working Draft](#)), and finalize a series of articles for the Tourism Planning and Development Journal, Special Issue Trails: Going the distance: The importance of Long Distance Trails for conservation and development ([Call for Papers](#))

Interested? Contact

Pedro da Cunha e Menezes cunhaemenezes@gmail.com

Laura Belleville Appalachian Trail Conservancy lbelleville@appalachiantrail.org

Galeo Saintz World Trail Network galeo@galeosaintz.com

[It doesn't belong here](#) *From The Guardian*

The worst-hit areas of [Cyclone Gabrielle](#) are littered with scenes like this, where logs have crammed the waterways, forming their own dams and then breaking them with increasingly explosive force. These same scenes have reignited debate about the longstanding issue of waste created by commercial forestry.

'It doesn't belong here' Radiata pine forests cloak the hills of Tairāwhiti, in thick, deep green rows, undulating over the slopes. The tree is not native to New Zealand, but it has thrived here – adopted as one of the fastest-growing and most lucrative forestry species.



Forestry waste coats Tolaga Bay beach, New Zealand

[Mountain Adventures in the Vatican](#) *From Edwin Bernbaum Co-Chair, IUCN Group on Cultural and Spiritual Values of Protected Areas (CSVPA)* International Day of Mountains conference

I really enjoyed giving the keynote address "The Message of the Mountains" (in the Vatican), which ranged from Everest and Kailas in the Himalayas and Mount Sinai in the Middle East to the San Francisco Peaks in Arizona, Mount Kenya in Africa, and Mont Blanc in the Alps, with quotes added from a couple of Popes, including Pope Francis.

The Cardinal in charge of the Culture and Education Office of the Vatican and the Director General of FAO (Food and Agriculture Organization of the UN), who is Chinese, opened the conference. There were talks on a wide variety of subjects having to do with mountains, including two Peruvians on Zoom from very poor Indian villages who were chosen as boys to be trained to be mountain guides by an Italian organization, which transformed their lives. One of them climbed Nanga Parbat in the Himalayas, one of the 14 highest mountains in the world.

Another speaker was an Italian woman who had climbed all 14 of those mountains without oxygen. There were also talks on Native American views of nature and criticism of the role of the Catholic Church for what it did to Indigenous cultures and peoples in America, on climate change, medicine, a walk through a mountain forest in Nepal, the perils of commercialization and artificiality in the Alps, climate change and glaciers, medical issues, etc.



Vatican dinner Photo: Ed Bernbaum

Scree and Talus cont.

[European Biodiversity Strategy for 2030](#) *From EWS*

In January 2023, the European Commission decided to refer six EU member states, namely Bulgaria, Greece, Ireland, Italy, Latvia and Portugal, to the European Union's Court of Justice.

This is due to their failure to establish, implement and communicate an action plan addressing key pathways of introduction and spread of *invasive alien species*. This follows letters of formal notice that the Commission sent in 2021 to 18 member states, asking them to take action.



For example, the grey squirrel (image L *Sciurus carolinensis*), which is native to North America, was introduced to Europe in the 19th Century. As a more effective competitor, it has effectively replaced the native red squirrel in many areas (e.g. in Britain). It competes with the red squirrel for food and has also spread the deadly squirrel pox virus to the native species.

[And in the Australian Alps...](#) *From Invasive Species Council*

In early February the NSW government (state of Australia) released new data out of Kosciuszko National Park. It found the feral horse population in the park has grown by 30% over the past two years, despite a commitment from the state government to reduce the population from 14,000 in 2021 to 3,000 by 2027.

The new data revealed there is now estimated to be over 18,800 feral horses trampling the park and endangering the unique wildlife that call the mountains home.

[Research in forest protected areas Turkey](#) *From Can Vatandaslar*

Forested landscapes offer high provisioning capacities for many ecosystem services.

Recent research results showed that the multiple ecosystem services (ES) provisioning capacity of the landscape increased by 7% over 35 years. The capacities for "crops" and "livestock" ES decreased for the same period. The most prominent ES were "wild foods," "erosion regulation," and "knowledge systems."

...The removal of anthropogenic pressure and the impact of conservation management can be evaluated as the main drivers for the positive changes in the total ES capacity. Effective conservation strategies should be further encouraged for increasing protected areas' capacities to provide the large array of ES. [Environmental Monitoring and Assessment](#) volume 194, Article number: 539 (2022)

From The Guardian February 2023

The summit of Mauna Kea has some of the best viewing conditions on Earth for astronomy, making it a favoured spot for the world's most advanced observatories. The summit is also [considered sacred by many native Hawaiians](#), who view it as a place where the gods dwell.

A camera on top of Hawaii's tallest mountain has captured what looks like a spiral swirling through the night sky. Researchers believe the strange phenomenon is linked to a military GPS satellite that launched from a SpaceX rocket in Florida.

Bizarre 'whirlpool' appears in night sky above Hawaii



From the **Mountain Partnership** The UNDP-led Equator Initiative has announced its [global call for nominations for the Equator Prize 2023](#). Thematic priorities include:

- **Creating a planetary safety net.** Actions to protect, restore and/or sustainably manage ecosystems to help mitigate greenhouse gas emissions, enable community-based adaptation to the impacts of climate change, and to ensure essential ecosystem services.
- **Redefining our relationship with nature:** Actions that help to redefine our relationship with nature by putting nature at the heart of local development plans and policies, and by defending the rights of land and water defenders.
- **Creating a new green economy for people and planet.** Actions to protect, restore and/or sustainably manage terrestrial, aquatic or marine ecosystems, biodiversity, and/or wildlife that sustains jobs and livelihoods, including through micro- and small green enterprises, and including the promotion of Indigenous economies.

Each Equator Prize winner will receive USD 10 000 and will be supported to participate virtually in a series of policy dialogues and special events in the fall of 2023.

Publications, Tools and other Media

Melting away *H. Jesse Smith*

Mountain glaciers, perennial ice masses excluding the Greenland and Antarctic ice sheets, are a critical water resource for nearly two billion people and are threatened by global warming.

Rounce et al. projected how those glaciers will be affected under global temperature increases of 1.5° to 4°C, finding losses of one quarter to nearly one half of their mass by 2100 (see the Perspective by Aðalgeirsdóttir and James). Their calculations suggest that glaciers will lose substantially more mass and contribute more to sea level rise than current estimates indicate. [Science, abo1324](#)



[Local Observations of Climate Change and Adaptation Responses: A Case Study in the Mountain Region of Burundi–Rwanda](#) MRI

A research output of an MRI synthesis workshop, a new paper provides a cross-border study on local climate change observations and adaptation strategies used by smallholder farmers in the same mountain region, but under different agricultural policies.

Ron Sutherland Chief Scientist, Wildlands Network ron@wildlandsnetwork.org

Wildlands Network did 3 years of research on a 28-mile/45 km stretch of interstate highway that wraps around the north side of Great Smoky Mountains National Park, one of the most biodiverse parks in the United States. Our work identifies a set of mitigation opportunities to help bear, deer, and elk cross the highway safely. Contact Ron for more information.

UNESCO Man and the Biosphere Programme and the World Network of Mountain Biosphere Reserves present their recommendations for harnessing the *socio-ecological potential of mountain biosphere reserves for biodiversity conservation*. This policy brief was produced in collaboration with the Mountain Partnership and the Mountain Research Initiative, in line with the International Year of Sustainable Mountain Development. [Download here](#)

[Building resilience into watersheds – A sourcebook](#)

The purpose of this sourcebook is to provide advice on how to incorporate disaster risk reduction and resilience building into the watershed management process. As an increasingly heavier toll is exerted on agriculture and food systems by drought, floods, wildfires, and other extreme events, adopting risk reduction and management practices

[Sustainable soil management in mountain regions - policy brief](#)

Mountain soils represent a finite, virtually non-renewable resource that provide essential ecosystem services for life on Earth, not only in the mountains but also downstream. This policy brief, published as a contribution to the International Year of Sustainable Mountain Development 2022, discuss the drivers of soil degradation in mountain regions

From FAO *Mountain women of the world – Challenges, resilience and collective power*

<https://doi.org/10.4060/cc3328en> [Download the publication](#)

Women play a key role in environmental protection and social and economic development in mountain areas.



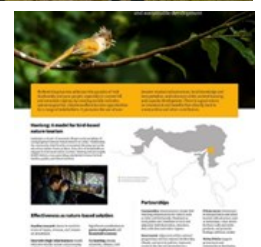
From CCSP We're excited to share a new resource from the Centre for Large Landscape Conservation. "Land Trusts and Wildlife Crossing Structures" is a compilation of lessons learned and best practices in action by land trusts engaged in wildlife crossing structure projects. **To download the toolkit:** <https://largelandscapes.org/land-trusts-toolkit/>

Films from Yellowstone to Yukon (Y2Y) Y2Y love bringing [art into the conservation conversation](#) because it has the power to inspire, share underrepresented perspectives, and create positive change. In the most recent 'Y2Y Film Fest,' nearly a thousand people joined Y2Y online for three films about protecting sacred landscapes that hold both ecological and cultural value in the Yellowstone to Yukon region. [Running Dry: Alberta's Shrinking Rivers](#), [DƏNE YI'INJETL: The Scattering of Man](#), and [For the Next Generation](#). Follow the film link for other films too.



From ICIMOD [Birdwatching tourism: A nature-based solution for conservation and sustainable development](#)

This poster highlights how Hanlong, China, has emerged as a model for birdwatching tourism, demonstrating the potential of this approach to address the challenges of conservation and sustainable development.



Looking for Mountain Research and many other excellent tools and publications? The Mountain Update has only a very tiny selection!

Try [Global Mountain Biodiversity Assessment \(GMBA\)](#), [Mountain Research Initiative](#), [ICIMOD](#) and [Mountain Partnership](#)—to mention a just few great sources of mountain information!

Important links

IUCN World Commission on Protected Areas for an outline of the role of Mountain Specialist Group [WCPA Mountain Specialist Group](#)

Please go to [https://youtu.be/ NuY89TWscl](https://youtu.be/NuY89TWscl) a short video of Protecting Mountains IUCN WCC presentation by Peter Jacobs (Chair Mountain Specialist Group).

Some events of interest

[Events - MRI - Mountain Research Initiative](#)

Mountain Partnerships Events [Here](#)

WCPA Mountain Specialist Group Committee		
Executive Committee	Name	Email
Chair	Peter Jacobs	Buffalo_springs@bigpond.com
	Patrizia Rossi	patriziarossi.rossi@gmail.com
	Mike Tollefson	miketollefson1@gmail.com
	Fausto Sarmiento	fsarmien@uga.edu
Editor Mountain Update	Gillian Anderson	peopleinnature@bigpond.com
WCPA Regional Representatives	Name	Email
Southern Africa (Eastern & Southern)	Clinton Carbutt	Clinton.Carbutt@kznwildlife.com
West and Central Africa	Sonigitu Ekpe	sonigitu.ekpe@graduateinstitute.ch
North Africa, West Asia & Middle East	Dawud M.H. Al-Eisawi	aleisawi.d@gmail.com
East Asia	Chaozhi Zhang	zhchzhi@mail.sysu.edu.cn
North Eurasia (Central Asia)	Marc Foggin	marc.foggin@gmail.com
Oceania	Shane Orchard	orchard.dse@gmail.com
South America	Matias Ayarragaray	matiasayarra@gmail.com
South Asia (Pakistan)	Ashiq Ahmad Khan	ashiqahmad@gmail.com
South Asia	Pradeep Mehta	pmehtanainital@gmail.com
South Asia	Ruchi Badola	ruchi@wii.gov.in
Europe (Austria)	Michael Jungmeier	jungmeier@e-c-o.at
Europe (eastern)	Oğuz Kurdoğlu	oguzkurdoglu@gmail.com
North America	Erik Beever	ebeever10@gmail.com
Central America—Caribbean	Rolando Ramirez	rolandorami2010@gmail.com
Young Professional Group	Shailyn Drukis	shailyn.drukis@gmail.com

While Mountain Network members can choose not to be WCPA members and still be involved and receive the Mountain UPDATE, the WCPA Chair, and Mountain Specialist Group Executive and would like to encourage all to become WCPA members. This helps to secure good governance and management of the WCPA and the Mountains Group and enlightens all members to the wider activities of the WCPA.

To learn more about WCPA membership go to: [WCPA Get Involved](#)

For any relevant mountain protected area news, please email me (Gill) on peopleinnature@bigpond.com

I look forward to hearing from you soon!

Rental crisis getting you down? Never going to own your own home? Why not become a wombat! Imagine owning a dozen houses in an idyllic woodland setting!

Welcome to the magical world of marsupial landlords!



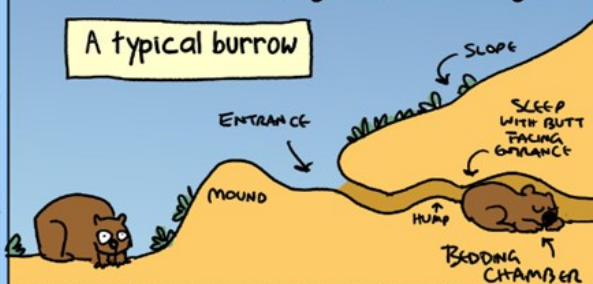
Bare-nosed wombats (*Vombatus ursinus*)
Are they the number one property speculators of the order diprotodontia?

Possibly - wombat science shows that on average for every wombat there are 10 or so burrows they inhabit at various times



A wombat burrow can be anywhere between one metre and 20 metres - some are for sleeping, wombats sleep a lot, some are for hiding or other things.

A typical burrow



The wombat bedding chamber is furnished with softest bracken and eucalyptus

Sometimes wombats will dig down to the water table so they can get an uninterrupted water supply - handy during a hot summer or drought. Sometimes other animals will also use the burrow to get a drink.



They do all this primarily eating grass! This makes wombats lazy - they are referred to as "energetically frugal". While wombats are the world's largest burrowing herbivores they also have one of the lowest metabolic rates.



A TYPICAL DAY IN THE LIFE OF A WOMBAT

Like sharks, wombats' teeth never stop growing - they are polyphyodonts

Female wombats raise their young for about 2 years - then they will leave the burrow to the joey. Organising your own burrow is too hard and the young have a better chance of survival if mum leaves.

Alright dear I'm off. Look after the place and don't forget Tuesday is bin night.

Fare thee well mother thank you for all you have done for me



It is thought that some wombat burrows are multi-generational - that they are decades or perhaps even hundreds of years old "handed" down from wombat to wombat.



Say the line!

With thanks to Associate Professor Scott Carver

Thank you to *First Dog on the Moon* for providing a bit of Australian wombat ecology and humor!