Report of the *Forth Naturalist and Historian* Man and the Landscape Conference Saturday November 14th 2015

THE MOUNTAINS OF CENTRAL SCOTLAND PAST, PRESENT AND FUTURE

Our region's mountains provide dramatic scenery rising from the lowlands, are havens for wildlife and rare plant communities and have sheltered and served as homes to people for millennia. They are constantly changing, adapting to new demands as visitors have flocked to them, and will continue to change into the 21st century. This conference sought to celebrate our mountains and uplands, presenting overviews and new research on our natural environment and its conservation, and the emergence of a lived landscape.

David Anderson (Forestry Commission, Aberfoyle) is the conservation manager for Cowal & Trossachs Forest District, roughly 80,000 hectares, of which >40 % of this is open, mainly montane habitats. His role as Conservation Manager allowed many insights into the management of montane habitats. David argued that our largely treeless uplands are now degraded from centuries of over-grazing from both sheep and deer, and muirburn taken to excesses. The landscape is depleted of small herbivores, with mountain hare, filed vole, stoat and weasel populations in significant decline over at least the last 30 years. Wild cat populations have suffered from disease spread by feral, once domestic animals. In Cowal and the Trossachs, native woodland planting has coincided with the removal of sheep and the culling of deer (4000 a year) in a 199-year management plan which has seen, among other trends, increases in the numbers of black grouse, from 12 to 80 males, and in pine marten, now very common from being absent in the 1980s.

This improvement has had little effect on predators like the peregrine falcon, and numbers remain in significant decline, but populations of hen harriers and golden eagles have increased. The monitoring of nests by remote-controlled cameras has shown the range of prey caught by eagles, including grows, foxes, badgers and gannets (!), but this wide variety introduces threats also in the passing up the food chain of environmental pollutants. Winter food 'dumps' of culled deer, shot with lead-free bullets, have done much to maintain populations of top predators.

John Calladine is Senior Research Ecologist with the British Trust for Ornithology. His recent research has included work on the Ochil Hills above Stirling and recent changes there in populations of whinchat. These small birds have been declining in their ranges (40 % in the last *c*.40 years) and abundance, by 55 %, contracting in lowland areas. Upland Scotland still has strong populations, and they thrive in open, semi-natural habitats like moorland and sheep pasture, as in the Ochils, where mosaics of grasses, tall herbs and plants

like bracken occur. Future management for whinchats might include reductions in trends such as the monotonous spread of plants like bracken. We might mimic the dynamics of former land uses. Whinchats have also benefitted from the establishment in recent decades of new native woodlands, or rather as these are now, still small and open-canopy, offering a niche for nesting, perching and singing. Monitoring in the Ochils has demonstrated that as tall shrubs and trees reclaim the higher ground, with reduced grazing pressure, whinchats follow them up. They are increasingly rare, however, in montane habitats above 300 m above sea level.

Helen Cole discussed what the National Trust for Scotland has undertaken with regard to protection and conservation of the internationally rare arctic-alpine plant communities on the base-rich metamorphic rocks of their Ben Lawers estate. Once a zoologist and a neuro-biologist, Helen discovered Scotland in her first post as ranger for the NTS at Brodick Country Park and Goatfell on Arran, reaching Ben Lawers as full time Ranger Naturalist in 1991, latterly as property Manager/Senior Ranger/Naturalist. Ben Lawers contains 16 nationally rare plant species, including alpine fleabane, alpine forget-me-not and alpine gentian. Habitats such as alpine calcareous grassland are of major importance and the site is also renowned, for lichens and bryophytes. The numbers of surviving plants are carefully monitored, working from a baseline survey in -1981. By the 1990's Highland saxifrage was represented by only one plant: it has been rescued now. The numbers of alpine fleabane are, for example, stable whilst other species are in decline, some as a consequence of grazing. Both red and roe deer are found on the hills, and sheep populations. Habitat restoration of the very small population of high-altitude willow species has resulted in fenced exclosures to remove grazing pressures, and the planting of willow stock grown from local seed in our nursery Colonies now thrive and their establishment has led to a rapid expansion of invertebrate and bird populations. More recently work has begun on restoring degrading peat bogs by re-profiling existing hags and stabilising with local heather brash. The work continues.

After lunch our attention turned to the impacts of people on our hills in the past, present and future. **John Atkinson**, Managing Director of GUARD Archaeology, led a few years ago a detailed campaign of archaeological survey and excavation with the NTS on their Ben Lawers estate, the Ben Lawers Historic Landscape Project. Though the focus was on medieval and post-medieval landscapes, it is characteristic of upland landscapes that evidence for prehistoric activity often lay just under historic period sites. In total, John's team excavated a total of 15 sites in three years. At altitudes above the head-dykes of 'traditional' medieval 'fermetouns' lie several turf-built square-shaped houses dated to the 12th and 14th centuries AD which may well have been occupied all-year-round. The site called T16 is typical of these, but here a large, possibly permanent house was overlain by two later shielings. This represents a pattern across the hillside where upland settlement changed, perhaps in the 15th century, from permanent to seasonal. Some huts suggested to be shielings

nevertheless represent substantial investments, while others are much more poorly constructed. Lordly residences of the 13th-14th centuries lie by the shore of Loch Tay at its head and exit. Taymouth Castle grew from in the 15th and 16th centuries from one of these. In the late 19th century, the landscape changed once more with the issuing of long leases for new single-tenancy farms above the old 'fermetouns'. One with late 17th century origins was Balnasuim whereas Kiltyrie was leased to one Donald Campbell a century or so later. The new farms had standard 'long-house' plans with byres and accommodation. But these barely lasted into the 19th century.

Also involved in the Ben Lawers Historic Landscape Project was **Richard Tipping** (University of Stirling) and he followed John Atkinson with a presentation that looked at the same Ben Lawers landscape but from pollen analyses. The high medieval upland shieling landscape was wooded, contrary to many assumptions, not dense or wild, but managed, conserved open-canopy woods of birch, hazel, rowan ad hawthorn, and used as wood pasture for cattle, providing shelter and more nutritious grassland for them as well as wood for fuel and construction. The pollen record shows that the shieling system on Ben Lawers intensified from the mid-16th century, when the wood pasture was lost, as it was elsewhere along Loch Tay. Grassland diversity was also reduced after *c.*1630, perhaps through larger herd sizes or stocking densities, through more people on the land or because of increasing stress to the shieling system from climate change in the Maunder Minimum, the most intense phase of the 'little ice age'. Close to the shielings of T16, 320 m above sea level, farmers tried to grow new crops around the shieling, possibly interpreted as an attempt to re-establish permanent farms despite the vagaries of the climate. They tried to grow buckwheat, and sheep's sorrel colonised mature-rich soils. Expansion is one interpretation: another is that people were growing both as famine food, to survive the 'little ice age'. Their attempt did not succeed. Neither, eventually, did the 'fermetoun'-shieling system, replaced in the late 18th century by the new farms. These failed, and clearance followed, around 1830. As people left, some seem to have memorialised this by the planting of single larch trees, not native to Scotland, but a symbol of a new world.

Bridget Jones has worked in outdoor access, recreation and visitor management for about 25 years, with the Loch Lomond & Trossachs National Park Authority for the last 13 years, with mountain paths as her area of expertise, as surveyor, trainer and co-author of the Upland Path Construction Manual. The Park was established in 2002, covers 1865 sq. km, and is home to more than 15,000 people. The Park has an astonishing 7 million visitor days a year, with >50 % of Scotland's population within an hours' travel time. There are more than 40,000 walkers on the big, 'frontline' hills, impacting on thin soils or peat in a very wet climate. The 'frontline' hills include The Cobbler and Ben's Lomond, Lui, Vorlich, Ledi and A'an. The effect of this pressure is clear, including the 'braiding' or widening of paths as walkers avoid quagmires and 'pigeon-holing' as walkers literally follow earlier steps, accelerating erosion. But there are ways to minimise this impact, by designing repairs utilising local

materials including boulders and turf to define path edges, varying its width to avoid uniformity and using graded stones to establish a good surface. Paths can be built by hand or with small diggers or power barrows using techniques to reinstate path surfaces, incorporating drainage and re-instatement of eroded ground. This can include stone water-bars diverting water off the path, stone cross-drains taking running water across rather than along paths and use of stone pitching to create a hard wearing surface on steeper gradients. The aims are to have paths that look natural, are attractive to walkers and low maintenance. The work is costly, but the two National Parks have been awarded £3.2 million from the National Lottery which has been matched by the two National Park Authorities, the Forestry Commission, Scottish Natural Heritage and others. This 5-year project will include path construction contracts which will provide opportunities for local employment, provide skills training for the unemployed, volunteering, education and learning for schools and visitors and improve the public's understanding of our mountains.

Also looking to the future is the SRUC Hill & Mountain Research Centre at Kirkton & Auchtertyre, near Crianlarich in the north of the National Park. **John Holland** talked about these developments. John is an upland ecologist, joining the Scottish Agricultural College (the former name of SRUC) in 1994. The farm is around 2225 ha, from 180 m to 1025 m above sea level at Ben Challum, with 74 ha of improved pasture, 153 ha of semi-improved pasture and 1677 ha of rough pasture, for 1230 breeding ewes and 21 breeding cows. Hill farms will need to pay their way in the coming years, and research is aimed at genetic improvements and increasing efficiencies. The first has led to more and heavier Scottish Blackface lambs, and more prolific Lleyn ewes are being trialled. Efficiencies come with automated monitoring of animals through their electronic tagging, now compulsory in Scotland and in minimising unnecessary work such as worming all lambs. Soils are carefully managed, grassland re-seeded with different mixes and with alternative legumes like Alsike Clover and Bird's-foot Trefoil. Economic diversification includes tourist accommodation and a farm shop.

There are also conservation measures, including cattle, introduced in 2013 to improve diversity of moorland and acid grassland habitats. Over 260 ha of mountain woodland have been planted in the last 20 years with a range of native tree and shrub species including downy willow. Much of this woodland was originally planted as part of a silvo-pastoral project, however due to the slow rate of growth of the trees it has not yet been possible to introduce sheep into the woodland. Herb species now flourish in the un-grazed woodland enclosure, including Northern Bedstraw and Melancholy Thistle. The spread of Purple-moor Grass has resulted in a substantial rise in the population of Scotch Argus butterflies. Bird species that have increased in response to woodland enclosure include species of conservation concern such as the Black Grouse, Tree Pipit, Cuckoo and Lesser Redpoll.

Richard Tipping