Field Trip: Te Moehau – ecology of the summit area. 8 – 9 February 2003

Steve McCraith

Te Moehau, the highpoint of the Coromandel Range (892m asl), was visited in early February (8/9th) 2003 by a group of 10 - including representatives from the Auckland Botanical Society, the Department of Conservation (Waikato Conservancy), an iwi representative from Ngati Rongo, an entomologist and two visiting bryologists from Chicago Field Museum. During the visit an assessment was made of the flora, general ecology and impacts of recreational visitors. In addition, the two representatives from the Chicago Field Museum undertook the first extensive investigation of the bryophyte flora on the mountain. This trip comes one year after a similar visit by the Auckland Botanical Society to the same area in March of 2002 (McCraith 2002) and included several participants of that previous trip. However on that trip the trig summit was not reached and the group had only made it as far as the summit of Little Moehau.

During 2002 work had started on the establishment of a public track up Te Moehau from Fantail Bay to eventually replace the Te Hope Track. This has come about as a result of concern raised by iwi regarding erosion problems of the existing track on the summit, especially in the area separating Little Moehau (NZMS260 S10 260148) from the trig summit (NZMS260 S10 255150). The Department of Conservation's Management Strategy (1996) for the area states the Department will "Make provision for tramping and walking but to ensure that recreational use does not damage or threaten indigenous ecosystems and species or the Maori cultural values associated with Moehau." and identifies one of its management opportunities as being "Potential for relocation of Moehau track to bypass Nga Tihi o Moehau."

The trip up from Te Hope Stream was relatively uneventful. The summer heat was noticeably absent, or we were immune to it, protected by the thick forest canopy and cooled by the nearby stream. The track initially meandering alongside the stream eventually branched off up a steep ridge toward the summit. Fenn traps were visible trackside for much of the trip after the ridge was gained, an indication of the work by DOC and the local iwi in managing the mountains predator numbers. North Island brown kiwi (*Apteryx mantelli*) are present in some numbers on the mountain as are both Hochstetter's (*Leiopelma hochstetteri*) and Archey's (*Leiopelma archeyi*) frogs (although the latter are in rapid decline).

Upon emerging from the forest and low growing sub-montane scrublands, the adjacent herb fields were found to be in an extremely dry state compared to last years trip - which occurred a month later in the year. The sphagnum moss beds, not uncommon immediately below and to the south of the summit of Little Moehau, only retained moisture deep down. *Racomitrium* mats (common in the summit surrounds) were dehydrated to the point that they had the texture of dried flowers. Even so the two bryologists present on the trip took advantage of the opportunity to seek out seepages and sheltered damp spots to investigate the liverworts present. Their results will be written up in future as part of their research into the 'liverworts *australis'* (southern liverworts).

Fig 1: *Thelymitra* sp. in fruit. A common sight at the trig summit

Flora-wise it is perhaps worth mentioning that again the low number of weeds seen on Moehau is refreshing. This is presumably due to the fact that there is currently little habitat in which they might have the opportunity to establish. This does not of course mean they will not become established in future and caretakers should be vigilant of this, especially in areas prone to slips. Another pleasing sight was the vast numbers of orchids present on the

approach to, and upon, the trig summit. Unfortunately, although several *Thelymitra* specimens were in full bloom the majority of orchids observed were at the fruiting stage or were well dried up (Fig. 1).

Perhaps the most interesting aspect of the flora observed on this trip was the plateau area between the two summits. This consisted of a large area (perhaps 100m²) that resembled ephemeral pakihi wetlands (c. NZMS260 S10257150). From their visits to Moehau in the 1930's Moore and Cranwell reasoned the origin of this area was the result of burning around the turn of last century (1899/1900). "A boggy slope on the eastern face of the trig peak had obviously been burnt; we were told [by a local resident] ... that the only fire he had ever seen... was one lit about 1899" (Moore 1973). Although the area was rather dry it was home to a number of sedges typically associated with damp areas such as *Schoenus maschalinus*, *Baumea teretifolia* and *Baumea rubiginosa*. A number of sun orchids (*Thelymitra* ?*venosa*) were seen dotted throughout this area and the entire plot had a unique appearance worthy of a repeat visit earlier in the season when both the sedges and orchids are in peak flowering. During our visit to the summit region the only addition to the existing plant list was that of *Eleocharis gracilis* (AK 280071).

The insect fauna observed during this trip was documented by Alan Flynn. While a list is included in Appendix 1, observations of interest to the party included numerous tiger beetles (*Cicindela tuberculata*) at the trig summit and orange crane flies (*Leptotarsus ferruginosus*), two species of thrips (*Thrips australis* and *T. obscuratus*) and the black and white striped long horn beetles (*Navomorpha lineata*, Fig 2.) all relatively common on the summit of Little Moehau.

Fig. 2: Stripped long horn beetle (*Navomorpha lineata*) approximately life sized

At first glance possum (*Trichosurus vulpecula*) numbers appear to be low on the mountains upper slopes. It is unlikely that possums would be pressured into venturing beyond the tree line if their food source is to be found in the forest proper. Interestingly possum may have had a relatively short existence on Moehau. Lucy Moore states "Moehau presents quite another picture, though one of its insular characteristics is that opossums [possums] still appear to be absent in December 1971" (Moore 1973). Certainly the extensive poisoning programme that has been undertaken by the Department of Conservation in collaboration with local iwi appears to be making an impact with little fresh possum browse or field sign noted and no possums heard during the night. Two recently deceased possums (presumably the victims of poison) were noted near the DOC hunters hut to the south-east of Little Moehau (approx. NZMS260 S10 268145). In addition, Fenn traps are arranged regularly on the Te Hope Track in order to trap mustelids (and presumably rats as well) although none of those passed by contained any predators – perhaps a sign of low numbers.

Fig. 3. Goat damage to a *Coprosma* sapling in bush immediately below the summit of Little Moehau

Despite the apparent low numbers of possums and mustelids it was disappointing to observe constant signs of goat browse in the forest adjacent to the final approach to the Little Moehau summit (Fig. 3). Even more disturbing was later observing four goats (*Capra hircus*) on a slip approximately 60m below the summit of Little Moehau. It is possible they have escaped from

a nearby property to the northeast of the area where goats are known to be farmed.

There has long been a history of goats present on Moehau. After visiting the summit area in the mid 1930's Lucy Cranwell and Lucy Moore observed "... after Adams's ascent of the mountain in January, 1881, the summit remained practically untouched until the trig station was erected about twenty years ago. Assisted by survey lines cut at that time [circa 1915], introduced animals (especially goat and pigs) have now gained access to all higher ground and have wrought havoc on all sides" (Cranwell & Moore 1936). Later, in the mid 1970's, when reflecting on her 11 trips to the summit of Te Moehau between 1929 and 1939, Moore reminisced - "We saw numbers of goats, and noted how well the line cut by surveyors served them as a route along the top of the main ridge through thick wind-scrub" (Moore 1973). Of her last trip there in December of said year she states, "In 1971 goats were seen in mobs right to the top" and she blames the "extensive" development of grasslands on the mountains upper reaches on browsing goats and cattle (Moore 1973).

The presence of goats on Moehau is a very real threat for both the delicate montane habitat and the regionally uncommon sub-alpine species it supports. The significance of these species on Moehau was first noted by Adams who stated at the time "Some of these plants are not found nearer than the top of [Mt.] Hikurangi, in the Ruahine Range (sic) (actually the Raukumara Range) - viz. *Celmisia incana, Pentachondra pumila, Ourisia macrophylla* (now recognised to be *O. colensoi & O. lactea*), *Phyllocladus alpinus, Dacrydium* (*Halocarpus*) *bidwillii*...The appearance of Ruahine plants on the summit is the more remarkable, as Maruaepuke, Kaitarakihi, and Te Aroha are respectively two or three hundred feet higher..." (Adams 1889). In addition, the presence of goats cannot but compound any erosion of track systems and of the adjacent bush by their use of the tracks and browsing of the plants alongside the track. Furthermore, if they are browsing the new growth of emergent species on fresh slips their actions may facilitate the establishment of weed species on the mountain, which at this point, are very low (McCraith 2002). The presence of slips allows for the establishment of weed species amongst thick bush and scrubland by providing an open area free of competing natives. This phenomenon can be seen with species such as pampas (*Cortaderia* spp.) and Mexican devil (*Ageratina adenophora*) on islands of the surrounding Hauraki Gulf. By browsing emerging native species goats are giving weeds an added opportunity to establish.

The effects of goats on an area such as Moehau are complex. "Understanding the diet and diet preferences of introduced ungulates [such as goats] is a crucial step towards...managing their impacts" (Coomes *et al.* 2002). "The success of goats in eating ... a wide range of plants rests on several characteristics: they have a great capacity to digest roughage, their lips are very mobile, they can climb sloping trunks and branches, and they are inquisitive and constantly "testing" the vegetation. Because they are so surefooted, and prefer open sites, they inhibit regeneration very effectively on steep, naturally eroding slopes" (King 1990). Perhaps of most significance however is the fact that although goats are highly selective in what they eat they have the ability and inclination to switch their diets as the more palatable food species are eliminated from their habitat (Parkes 1993). This impact may manifest through changes in the composition of shrubland and forest communities and the "near extermination of insular endemics" (Norton 1995). Couple this with the fact that goats are able to breed throughout the year and that they are capable of breeding twice within the year (Parkes 1993) it is clear that they are a major threat to the delicate flora of Moehau.

The Department of Conservation Management Strategy for the Cape Colville and Moehau Range states to preserve and enhance the outstanding ecological values it will "remove goats and possums and prevent the establishment of deer, wallaby, and any other introduced browsing animals which may invade any land administered by the department" and "monitor and ensure the maintenance and protection of indigenous ecosystems and species, and other natural resources by fencing ... as necessary". Hopefully this action, along with the predator control programmes already in place will serve to protect the valuable flora that Te Moehau contains.

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Appendix 1: List of insects observed by A R Flynn on Te Moehau trip 8-9th February 2003

Lepidoptera (butterflies and moths):
Lycaena salustius complex*: Lycaenidae,* Common copper (Pepe Para Riki). Flying in open areas (not collected)

Coleoptera (beetles):
Navomorpha lineata: Cerambycidae, striped longhorn
Halmus chalybeus: Coccinellidae, steel blue ladybird
Stethaspis longicornis: Scarabaeidae, Mumu chafer. (Large shinny green)
Scolopterus sp.: Curculionidae, Four spined weevil. Found on *Dracophylum* Half way up
Cicindela tuberculata: Carabidae*,* common tiger beetle. On Moehau trig (Photo taken, killed and cannibalised other tiger beetle)
Ctenognathus bidens: Carabidae, ground beetle. Between trig and little Moehau summit
Eucolaspis sp: Chyrsomelidae, bronze beetle

Diptera:
Leptotarsus ferruginosus: Tipulidae*,* Orange crane fly. Found all over at the top of Moehau
Calliphora stygia: Calliphoridae Brown blowfly, Rango Tuamaro. Very common at the top on sunny spots

Hymenoptera (ants, bees and wasps):
Sphictostethus nitidus: Pompilidae*,* Golden spider hunting wasp
Huberia striata: Formicidae, red native ant. Nesting in logs below little Moehau summit.

Plecoptera (stoneflies):
Stenoperla sp. Large green stone fly (adult). At last water crossing at base of mountain

Phasmatidae (stick insect):
?Clitarchus sp., Common stick insect (not collected). Found dead on lower track.

Thysanoptera (thrips):
Thrips australis:. Thripidae
Thrips obscuratus: Thipidae
Thrips found at the top on Moehau in hundreds in *Phormium cookianum* (Possibly a mating aggregation)

Hemiptera (true bugs, cicadas and leafhoppers):
Coelostomidia sp: Margarodidae (probably *pilosa* or *zealandica*), giant scale. Found crawling on tree trunk at side of track

Field Trip: Wairoa Valley, Hunua Ranges. 15/02/03

Steve McCraith

On a clear summer morning 16 members of the Auckland Botanical Society turned out for the first foray of the New Year. After a quick swapping of stories in the car park of the Hunua Tennis Club the group headed out in to the Wairoa Valley c. 10km to the south. Cars were left at the bottom car park on Otau Road, rides were pooled and the group undertook the rally stage of the trip up the dusty Moumoukai Road. Cars were parked, packs packed and repacked until finally Botsoc headed off up Repeater Road in search of botanical splendour. The old entry/exit for the now defunct section of the Wairoa Valley Track is located very close to the car park. Today however, we would be visiting the new section of the track.

Not far along the road a lookout provides fine views over the Mangatawhiri Valley including the reservoir itself, one of four in the Hunua Ranges. Views were also available of the Repeater station along the ridge to the north. Further on up the road a side trip was made to the site of the old rangers house, previously home to an extensive exotic garden. A few remnants of the garden can still be seen including English ivy (*Hedera helix*), *Clematis flammula*, *Plectranthus* ? *ciliatus*, bear's breeches (*Acanthus mollis*), *Cyperus eragrostis*, *Escallonia rubra* and kahili ginger (*Hedychium gardnerianum*). Local rangers are slowly removing the more aggressive of these. In addition, several obviously planted natives included kauri (*Agathis australis*), common flax (*Phormium tenax*) and kowhai (*Sophora microphylla*). As we were about