SIGNIFICANT KARST PURCHASE FOR CONSERVATION – NELSON, NEW ZEALAND

- Ian Millar

A view toward the north end of the property showing farmland, scrub and forest in the catchment of Homestead Creek, one of the major sinking streams on the property.

The New Zealand Minister of Conservation recently announced the purchase of most of the *Canaan Downs* farm at Canaan, north of Takaka Hill, for conservation purposes. The property was offered to the Department of Conservation for first refusal by its owners Tim and Jane Greenhough and was purchased by the Nature Heritage Fund.

The property lies on an upland plateau around 750-1000 metres above sea level, and it represents over half of a large enclave of private land completely enclosed by Abel Tasman National Park. The purchase is especially noteworthy in being one of the first major land purchases by the fund made predominantly on the basis of geomorphological, rather than biological, values, although its strategic position was also relevant.

The 750ha property lies wholly within a large, internally draining basin formed in granites and quartz diorites (eastern side) and late Ordovician marble (western side). The karst drainage from this basin flows westward to karst stream risings in tributary gorges of the Takaka Valley. Much of it then sinks underground again to enter the interstratal karst aquifer of the Waikoropupu Springs to the northwest. The *Canaan Downs* property appears to drain entirely to the Gorge Creek Cave system, the largest karst stream rising draining the plateau. The known extent of Gorge Creek Cave and much of its surface catchment already lie within the national park, and this purchase effectively secures the bulk of the privately-owned catchment area. It also secures karst and beech forest along the first 700m of the half-hour walk to Harwoods Hole.

The Homestead Creek sink near the base of marble bluffs. Like the other creeks in the area, this one forms on granite then sinks at the contact with the marble. Once upon a time it continued to flow on the surface beyond this point for another 3.5 km to the west before cascading down the 180m shaft of Harwoods Hole.

The property has been substantially converted from forest to pasture over the years, but with some smaller remnant stands of native forest. Although there are associated biological values, the main drivers for the purchase were the property's karst values and its strategic position in relation to the park. As well as comprising a major part of the Gorge Creek Cave catchment, the property also has significant karst surface features. These include several streamsinks and a small polje, one of the few examples in New Zealand. The polje features a steep-sided, flat-floored, sink area in which water often ponds to 3-5m depth and rarely to as much as 15m depth after rain. The property also features a long, alluvium-floored dry valley which once conveyed most of the basin's drainage to the 200m vertical shaft of Harwoods Hole. The purchase includes at least five recreationally significant deep caves (Ed's Cellar, Dogleg, Legless, Corkscrew and Canaan Downs Cave) and with no explored connections between these caves and other stream sinks on the plateau and Gorge Creek Cave 550m below there is still considerable exploration potential.

An early report in the *Nelson Mail* newspaper that the purchase "could see the Southern Hemisphere's deepest caving system added to Abel Tasman National Park", a reference to the nearby Harwoods Hole which is actually already in the national park, was subsequently retracted as the over-enthusiasm of a sub-editor. (The New Zealand media still occasionally refers to Harwoods variously as the deepest cave in New Zealand or the Southern Hemisphere – positions that it hasn't held for over 25 years!)

The Canaan karst is quite different in character from the nearby, largely eastward-draining, Takaka Hill karst. The latter features large areas of doline or polygonal karst, in which the land surface consists of a mosaic of dolines of different sizes separated by their common ridges. By contrast, the Canaan karst, with its large amount of allogenic catchment, appears to have been shaped more by larger-scale processes of stream flows, sediment deposition and stream capture. Dolines occur, but they tend to be more scattered and there are few areas of polygonal karst.

Biological values of the property include some plant species with restricted distribution, usually associated with marble outcrops, and the very large carnivorous landsnail *Powelliphanta hochstetteri hochstetteri*, a species considered to be in decline. The adjacent national park forests hold populations of two other significant invertebrate species, the large carnivorous landsnail *Rhytida oconnori* (nationally endangered) and a large ground beetle [listed nationally vulnerable). These species may also occur within the purchase area.

The farm was originally purchased during the mid-1900s as six discrete blocks, each of which still has its own title. Given the trend towards lifestyle block subdivisions on Takaka Hill to the south, the Greenhough family could probably have realised substantially greater returns by selling the property block by block on the lifestyle market. Their offer to the department was therefore a very generous one. The family have opted to retain one of the blocks in the meantime, but stated that they would give the department first refusal on this also if they decided to sell at a later date.

Given its modified nature the property will probably be given scenic reserve status, rather than being added to the national park. The announcement of the sale has brought some adverse reaction from farmer organisations opposed to the removal of farmland from farming.

One of the major stream sink areas in the Canaan polje, with meandering stream beds cutting into a flat alluvial floor at the base of marble outcrops. A figure in the lower right provides the scale and to the right of the figure can be seen a fence line with a line of earlier fence posts now partially buried in the alluvium which has built up in the time that the property has been farmed.