Distribution of the very rare moss *Epipterygium opararense* and recommendations for track upgrades at Oparara

Short communication

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Distribution of the very rare moss *Epipterygium opararense* and recommendations for track upgrades at Oparara

Short communication

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A B S T R A C T

A population survey of the rare endemic moss *Epipterygium opararense* in the Oparara Basin, West Coast Conservancy, New Zealand, was conducted in March 2005, in advance of an upgrade of the Oparara Arch walking track. The total population of this plant was estimated to consist of c. 175 plants growing less than 2 m distant from the existing walking track. A search for other populations in the vicinity was unsuccessful. The conservation status of *E. opararense* as 'nationally critical' was thus confirmed. It is recommended that no track widening, rock removal, or vegetation clearance should be undertaken along the stretch of track occupied by *E. opararense*.

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OBSERVATIONS

Buller Area Office planned an upgrade of the walking track to the main arch in the Oparara Basin for 2005. This track passes within 2 m of the only known and re-traceable localities of the endemic moss species *Epipterygium opararense* (Fife & Shaw 1990). This moss has been ranked 'nationally critical' in the Department of Conservation (DOC)'s threat classification system (Hitchmough 2002).

We undertook a survey for *E. opararense* to ensure that this very rare moss would not be affected by the planned track upgrade. The survey determined:

- The distribution of *E. opararense* along the track to the main Oparara Arch
- The measures needed for protection of *E. opararense* during the track upgrade

We identified parts of the track to the Oparara Arch that warranted search effort from the paper describing the species (Fife & Shaw 1990) and from information recorded on herbarium labels in the Allan Herbarium, Landcare Research, Lincoln (CHR), the Auckland Institute and Museum, Auckland (AK), and at Te Papa Tongarewa / National Museum of New Zealand, Wellington (WELT). Vertical and overhanging surfaces of granite boulders were identified as the main habitats to search. Deeply shaded micro-sites on soil inside rotten fallen trees were also searched, as *E. opararense* was collected from such a habitat in 1992 by D. Glenny c. 1.5 km from the main Oparara Arch.

On 1 March 2005 we only found *E. opararense* at two separate sites along a 10-m stretch of track near the main Oparara Arch:

1. At the locality from which the species paratype was collected in 1990 by one of the authors (AJF) (Fife & Shaw 1990). Here, c. 150 stems of *E. opararense* grew amongst a hepatic mat, which was dominated by *Kurzia hippuroides*, on a vertical boulder-surface. The entire subpopulation covered an area of c. 1.5 × 1.0 m, at a mean elevation of c. 1.7 m above the track surface. No capsules were present. (*E. opararense* is dioecious, thus reducing the probability that capsules are produced.) The subpopulation and the associated hepatic mat were adjacent to a dense growth of *Metrosideros fulgens* and *M. diffusa,* but *E. opararense* was not seen to grow amongst the *Metrosideros*.
2. About 3 m further along the track, on moist, deeply shaded humus, at an elevation of c. 0.3 m above the track surface. This subpopulation appeared to be threatened by luxuriant plants of the indigenous but weedy thallose liverwort *Marchantia foliacea* Mitt., which were growing less than 0.3 m away.

Both sites are within 2 m of the edge of the track formation and are thus highly vulnerable to disturbance caused by both track upgrades and normal track-maintenance.

E. opararense was not found in seemingly similar habitats on the vertical and overhanging faces of boulders further upslope, or on humic soil inside rotten fallen trees. No remains of the overturned tree-stump described by D. Glenny and P. Brownsey (pers. comm.; WELT M 28510[1]) during his 1992 collection could be found.

Similar unsuccessful attempts to locate new sites were made at several Oparara Valley sites (including the area near the mouth of Fenian Creek) in February 1990 by one of the authors (AJF), B.H. Macmillan and R. Tangney (unpubl. data).

E. opararense, cited under the name *E. obovatum*, has been reported from Kakapo Saddle (c. 650 m a.s.l.), some 30 km SSE of the Oparara Arch, by Ochrya (1991). This was based on a collection made by J.K. Bartlett in 1981 from 'soil on fallen bases of rotting stump of *Nothofagus* sp.' (AK 197610). A search by one of the authors in the vicinity of Kakapo Saddle in 1987 (AJF, pers. obs.) and an intensive effort by D. Glenny (pers. comm.) along the Wangapeka Track (including Kakapo Saddle) in December 1994 failed to re-locate the species. This failure both to locate new sites and to re-locate reported sites strongly suggests that this species has very specific habitat-requirements and is likely to be naturally very rare in the Oparara Valley.

The fact that both Bartlett (in 1981) and Brownsey and Glenny (in 1992) have collected this species from overturned tree-bases indicates that *E. opararense* is capable of establishing new populations in these disturbed habitats. Field observations (by AJF and D. Glenny, pers. comm.), suggest that such colonies are probably ephemeral. Given that sporophytes of *E. opararense* have not been discovered, despite repeated special searches, it is difficult to understand the means by which such establishment occurs. In contrast to these ephemeral and disturbed tree-base habitats, the two main colonies observed in 2005 appear to be highly vulnerable to habitat disturbance.

CONCLUSIONS

As the Oparara Arch localities remain the only re-locatable sites for *E. opararense*, and given that these two sites are within 5 m of one another along a very popular walking track, the present threat classification of 'nationally critical' is clearly warranted. Being so close to the track, these two sites are very vulnerable to track maintenance and upgrade work. The only track-upgrade work that is not likely to impact on this moss is regravelling of the track surface. Therefore, we recommend that there should be no track widening or vegetation removal along the section of track where *E. opararense* grows. In addition, no blasting work should be undertaken along this stretch of track, as there is a high risk that rock debris could dislodge a significant proportion of the *E. opararense* population.

[1] Herbarium code and accession number.

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