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Salt favours highway plant invasion

A quiet change is happening on the verges of Switzerland's motorways: new plants are moving in, often transported over long distances in the wheels of trucks and cars.

Furthermore, the salt used to de-ice roads in winter has had a severe impact on habitat, driving out such common wayside plants as daisies and dandelions, and enabling salt-tolerant plants to take root. As a result, some plants which used to be found only on the coast are moving inland.



Cochlearia danica / Danish scurvy-grass) / Dänisches Löffelkraut

When botanist Raymond Delarze was stuck in a traffic jam with a colleague they were intrigued by the flowers on the central reservation. One of them hopped out and collected some plants: It turned out to be Danish scurvy-grass, which grows all along the coast from Scandinavia to northern Spain, but had never been reported in Switzerland.

By creating special, totally artificial conditions, species appear in response to these conditions. They have succeeded in colonising a biotope which is favourable to them. The more familiar plants, unable to put up with saline conditions, are no longer in a position to compete with the newcomers. While their spread is undoubtedly the consequence of human activity – not only the salting of roads, but the construction of the road network itself – the way it works out is unpredictable.

Some of the newcomers have moved gradually; their presence was documented in France and Germany before they turned up in Switzerland. Others have appeared suddenly, far from any previously known location.

Some newcomers were present in small numbers for years, barely noticed, and then suddenly spread. Many of the plants – like the scurvy-grass, the buck's horn plantain, or the salt sandspurry – are very modest and unlikely to strike the non-biologist. But others are quite noticeable, like the bright-yellow narrow-leaved ragwort, a type of groundsel

which originated in southern Africa and now provides a burst of colour alongside many motorways. It came to Europe a long time ago, imported in raw wool, but it has only recently started to spread. Like the plants from European coastal areas, it has probably benefited from the gap in the habitat caused by the salting of the roads.

In recent years there has been a lot of publicity about harmful invasive plants arriving in Switzerland, most notably the common ragweed from North America and the giant hogweed from the Caucasus, both of which are damaging to human health. With climate change, it is certain that some plants will move elsewhere, and new species will arrive. Of the 3,000 or so flowering plant species in Switzerland, about 350 are categorised as neophytes, plants which have arrived since about 1500 and the discovery of the Americas.

Some plants – e.g. hogweed and ragweed – can grow anywhere whereas others require a special environment. All exploit the road network to get here. The salt-tolerant plants have to grow by roadsides. If salting were to stop, these newcomers could not survive.

If these plants are in themselves no threat to the native flora, what about their impact on the wider environment? It is possible that insects which depend on the newcomers could follow their host plants and immigrate to Switzerland.

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