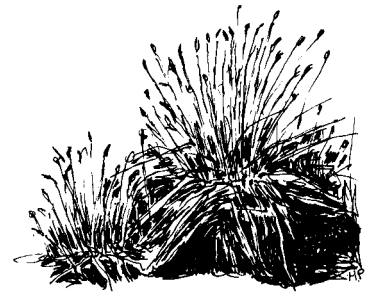
Story of a Sedge

Brian S. Brookes



In 1884 the brown bog-rush *Schoenus ferrugineus*, a European member of the Sedge Family, was discovered for the first time in Britain on the shore of Loch Tummel in Perthshire, in the Scottish Highlands. The discoverer was James Brebner, Rector of the Harris Academy in Dundee. The author tells how the plant was exterminated on this site but successfully established 90 years later in a nearby site with plants propagated in a botanic garden from a single plant taken from the original site. The story, he suggests, poses a number of questions for plant conservationists.

When James Brebner discovered *Schoenus ferrugineus* on the shore of Loch Tummel in 1884, there were very few plants and the site was not published. Nevertheless, the plants soon had to contend with the plant collectors of the day. By the end of the 1880s numerous botanists had visited the site and collected specimens of the plant for their private herbaria. Over the years, these many herbaria have been left to a few national institutions such as the Royal Botanic Garden, Edinburgh, and the British Museum (Natural History) in London, so ironically the *Schoenus* plants are together again, though as piles of sheets in herbarium cupboards. Here may be found, for example, 22 complete plants and 88 separate flowering stems collected by one party on a single day – 18 August 1888. Despite the rash of collecting, White asserted that the small population showed 'no falling off'. However, by 1900 'not a plant was to be seen' according to a saddened Brebner, and a year later Barclay confirmed that only a few spikes remained.[1,2]

Were the plants simply victims of the vasculum? A more likely explanation is that the decline was a natural setback caused by fluctuations in the water level of the loch. The plant occurred on that part of the shore between the summer and winter water-levels, so that it was normally inundated in winter, but grew and flowered when exposed in the summer. (The regular fluctuation in water-level was probably important as it eliminated competitor species which could not survive inundation.) If the water level did not fall during one summer, the *Schoenus* would be submerged all year and it might then disappear for a few years until the shore was recolonised from plants higher up.

The population appears to have recovered, for by 1907 G.C. Druce included the species in his list of specimens for exchange and the collecting continued. In a trip on 19 July 1913, W.A. Shoolbred, E.S. Marshall and C.E. Salmon took 29 whole plants, which they completely uprooted, plus 142 separate flowering stems. According to Marshall and Salmon, the plants were abundant.[5] Prominent botanists continued to visit the site during the 1930s; J.E. Lousley and A.W. Graveson, in August 1932, found it was heavily grazed by bullocks which they photographed standing on the *Schoenus* plants (pers. comm.). A photograph in 1936 by R.M. Adam in the possession of the *Scots Magazine* shows the tufts of *Schoenus* growing between large stones with much purple moor-grass *Molinia caerulea* and young seedlings of ash *Fraxinus*

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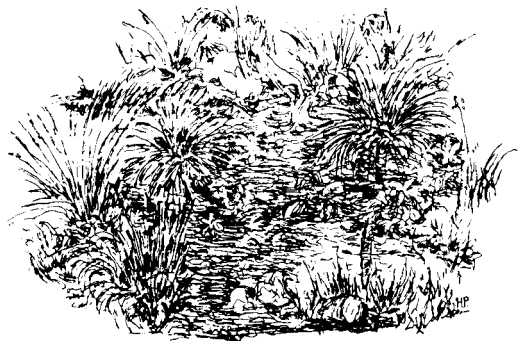
excelsior, on an otherwise stony shore with little vegetation. Other botanists, including W.A. Sledge, E.C. Wallace and R. Mackechnie, visited the site in these years and recorded some of the associated species. Evidence about the site is scanty and hard to come by today, but at least the plant was known to survive there.

Destruction and Rescue

On Saturday, 10 February 1945 *The Times* announced that the North of Scotland Hydro-Electric Board planned to dam Loch Tummel and raise the water level 17 feet (5.1m) to form the reservoir for a power station. Lousley reported the threat,[4] and plans were made for transplanting some of the *Schoenus* population to a safe site. In 1946 the Botanical Society of the British Isles made an excursion to study the *Schoenus* habitat.[3] They found the plant extending further along the loch shores than previously thought and discovered some individuals on the southern shore. They took soil samples and planned a series of transplants to save the *Schoenus*. The plan was to move a large number of plants complete with the soil in which they were growing, up the shore from the existing site to the future level. A new site was designed by Miss M. Campbell and A.J. Wilmott and prepared by the Hydro-Electric Board. Early in 1950, at short notice, the level of the loch was raised. Just in time, H. Salzen (then H. Fairlie), from the newly formed Nature Conservancy, was able to transplant tufts of *Schoenus* into the newly built site. Snow covered the ground and the operation was a hurried affair. She for one did not hold out much hope for the plants' survival (*in litt.*). The original site was submerged from 9 February until 25 July 1950 when the water level was lowered to its natural level again. On 26 July more plants were transferred to the higher site.

In October 1950 the loch reached its new level and completely submerged the specially prepared new site; the following winter the retaining wall was destroyed by wave action, because, it was later explained, sufficient allowance had not been made for 'the force of the wave action because of the increased and more exposed water surface and greater depth of the new Loch Tummel'. This finally destroyed *S. ferrugineus* at Loch Tummel and removed it from the British list.

However, many other transplants had been made to other lochs, and large quantities had been planted on the shores of Loch Rannoch and Loch Tay. In all some 14 transplants had been made, involving hundreds of plants. Plants had also been sent to the University Botanic Garden, Cambridge, and to the Royal Horticultural Society's Garden at Wisley in Surrey. But of all these only two survived. One was the plant sent to Cambridge, which was successfully propagated, and the other a plant taken by J.A. Whellan to Ben Vrackie in



Dr Hans Persson

1945. Ironically Whellan, who carefully recorded his transplant in the literature, was criticised at the time, chiefly because he had moved the species to another vice-county on his own initiative.[6]

Reintroduction

On 29 May 1975 29 plants from the Cambridge stock were reintroduced on to the north shore of Loch Tummel and nearby sites. The aim was to find sites ecologically similar to the original locality, but it proved very difficult to gather any useful information on this point. Two of the three reintroduction sites are on the present shore-line of Loch Tummel, the third is a calcareous flush on the slope above the loch. One shore site is muddy and shaded, and none of the transplants there survived more than a year; the other is a cleared area of willow and alder scrub, heavily limed, in which most of the transplants have survived, although the site is now becoming very grassy. In the third site, some plants, protected from grazing by a small enclosure of wire-netting, became smothered with grass and survived less than a year. But one plant at this third site, not protected from grazing, has thrived and grown larger in five years than the Ben Vrackie plant has grown in 35 years! Records of the 1975 reintroductions are held by the Nature Conservancy Council, Huntingdon.

Some Questions

The achievement of the original aims has raised a number of fundamental questions, such as: To what extent does collecting endanger rare species? How much material of rare species is needed in herbaria? Which herbaria should they be in? Who should regulate this? How widely should the sites of rare species be known? Are steps being taken to ensure enough is known about the ecology of rare species before it is too late? When should rare species be rescued? When and where should reintroductions be attempted? Who decides?

Certainly complete and clear records of transplants should be kept, but where? It took me a year of intensive correspondence, interviewing and research to find out where the transplants were made, gradually piecing together the fragments of evidence on events which happened only 30 years ago. Some transplants are only recorded on scraps of paper; in others the writing has faded away. Surely it should not be as difficult as this. Unless records are kept in some kind of co-ordinated system, they get lost, because people forget, change their names, change their addresses or die. Are we making it any easier today for botanists in 30 years time to know what we are doing?

Epilogue

There is a happy ending to this tale, for in 1979 two large and extensive natural sites of *S. ferrugineus* were found in Scotland on sites that preclude the possibility of being derived from the 1945-50 transplants.[6,7] The new localities are of the typical *Schoenus* habitat in Scandinavia and Eastern Europe – open peaty moorland; the Loch Tummel site is a very untypical one. Herein too lies a botanical message: perhaps those who discovered the *Schoenus* in the 1880s and those who were concerned with its relocation in 1945-50 were too concerned with its local habitat; a study of its habitat on the continent could have paid great dividends.

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Vegetable Sanctuaries

It is now an offence to sell or offer for sale any vegetable not on the UK National List or the EEC Common Catalogue. These lists omit many rare and currently unprofitable varieties which have been grown for centuries, although many of their seeds are now stored in the Vegetable Seed Bank at Wellesbourne, Warwickshire. Lawrence Hills, of the Henry Doubleday Research Association, believes that these old varieties should continue to be grown to see how they stand up to modern diseases. He has appealed to people with sufficient space to run vegetable sanctuaries and grow these seeds. Such sanctuaries have already been established in Cheshire, Dorset, Somerset and Yorkshire. Those interested should write to him at the HRDA, Bocking, Braintree, Essex. He also appeals for seed packets more than ten years old and pre-1939 vegetable catalogues.

A Call for Forest Reserves

Only a small fraction of tropical plants have been named and still fewer investigated for possible useful properties,. but they are disappearing fast. A resolution passed at the 13th International Botanical Congress in Australia last August urged the International Union of Biological Sciences to consider the establishment of a global network of strict virgin forest reserves for research and genetic conservation, and also to set up a programme, to be called the Decade of the Tropics, to publicise the destruction and the harm being done, and encourage research.

A rain forest resolution pointed out that an area of such forest the size of Great Britain disappears every year; India's last remnant of tropical evergreen rain forest, the Silent Valley in the Western Ghats, was selected for an approach to the Indian Government.

Story of a Tasmanian Endemic

In 1803 a passenger to Van Diemen's Land, Robert Brown, stormbound in one of the Kent Islands in the Bass Strait between Tasmania and Australia, found an endemic plant *Pratia irrigua* and sent it to Kew. This, the type specimen, is the only one ever seen in the west until 1970, when plants were collected from two islands in the Kent and Furneaux Group and sent to Kew to be painted by Margaret Stones for the *Endemic Flora of Tasmania*. Afterwards they were planted in Kew's new alpine house, and are now colonising gravels on edges of the paths. Last April specimens of male and female plants were sent to Tasmania where the plant had never been seen.