Fight for the falcon

from Wendy Barnaby, Stockholm

THE Peregrine falcon is in imminent danger of dying out in Sweden. At the beginning of this century there were an estimated 1,000 pairs, chiefly in the north, the west and the region west of Stockholm. By 1945 the number was reduced to 350 pairs, by 1965 to 35, and by 1974 to nine. This year only six pairs are left.

The falcons have declined in the past 50 years mainly because of the widespread use of pesticides, especially heavy metals such as mercury and chlorinated hydrocarbons. Along with this, hunters (particularly the owners of carrier pigeons) have systematically shot the birds and robbed their nests. The Peregrine did not become a protected bird in Sweden until 1957.

All of the information known about the plight of the falcon in Sweden has been compiled by the Swedish Society for Nature Conservation (SNF), a non-governmental, non-profit organisation with about 60,000 members. In 1972 the SNF began a project to make annual inventories of the bird and to study the reasons for its decline. This year expenses for the project amount to Sk100,000 (about $20,000), which is provided by various private funds, the Swedish branch of the World Wildlife Fund, the Swedish Environment Protection Board and the SNF itself. As well as inventories, the programme includes studies of the falcons' food analyses of pesticides and the protection of nests and nesting areas.

The project leader, Mr Peter Lindberg, has surveyed the falcons' prey to determine the regularity with which certain species are consumed, but the results have not been very illuminating because little is so far known about the ways in which these species are contaminated with pesticides. Nor has it been possible to bypass infected natural sources to any significant degree by releasing clean prey in the peregrines' vicinity. The problem is that the falcons spend six months every year outside Sweden, when their diet cannot be controlled.

Threatened: the Peregrine falcon (Photo: Peter Lindberg)

Mr Lindberg is convinced that stable pesticides have done the birds more harm than any other single factor. Studies of the mercury content of Peregrine feathers have shown that until 1940, the mean mercury value was 2500 ng/g. In the 1940s an organic mercury preparation, alkyl-mercury, began to be used for dressing seeds to protect them against fungi. By the 1950s the falcons' mercury values had increased by ten and twenty times, reaching a peak just before the use of mercury was banned in 1966. Since then the mercury values have decreased, but in the early 1970s they were still three eight times as high as the pre-1940 mean. Not only is mercury harmful to grown birds, which become paralysed when poisoned, lose their balance and finally die, but it also reduces the chances that eggs will hatch—Peregrine eggs with a mercury content as low as 450 ng/g (dry weight) have been found unhatched.

Chlorinated hydrocarbons have also helped to reduce the falcon colony. Many of these substances are stable and are stored in the birds' fat, only to be metabolised in winter as their fat reserves are used. DDT has been widely used to protect young plants in Swedish forests until it was totally banned this year. In its broken-down form of DDE, DDT is thought to thin the eggshells, which can then crack and break more easily than normal eggs. Eggs examined in Sweden have shown that the mean thickness of the shell fell by 11.4% to 0.31 mm between 1946 and 1974.

In addition, PCB, which has been used in industry in Sweden since the 1920s, is known to disturb the body's enzyme and hormone balance, and researchers suspect it can reduce the falcon's ability to breed. There are no thorough figures on the PCB content of Swedish birds because so few have been found dead, but one suspected chain of contamination suggests that the PCB in paint used on boat hulls dissolves in the water to be ingested by sea birds later preyed on by falcons.

Since the Peregrine project began, all 568 nesting places known to have been used by the falcon in this century have been registered, and most visited. Wherever volunteers have found a pair, they have kept a 24-hour watch on the nest (sometimes using closed-circuit television cameras) over three-month periods from the laying of the first egg until the young have left the nest. Even though falconry and the hunting of the Peregrine are banned by law in Sweden, the nests may still be disturbed. Often the culprits are foreign.

The problems of saving the Peregrine are further complicated by its migration. Calculations show that 53% of young Swedish Peregrines and 40% of older ones have been shot outside Sweden. Other countries' hunting, falconry and pesticide laws are therefore of enormous importance in the species' decline: a decline which is being registered not only in this country but in the whole of Scandinavia, Europe, North America and the eastern part of the USSR. At a conference of the International Council for Bird Preservation in Vienna last October these problems were discussed, and resolutions were passed urging that activities harmful to the falcons be banned in each country. Those to which the Peregrine mainly migrates are Denmark, England, the Netherlands, France, Belgium and northern Spain. But—as the experience of the French has shown—even if hunting is made illegal, it often takes the hunters a few years to comply.

In a last-ditch effort to save the species in Sweden, Mr Lindberg has just begun a captive breeding programme. He has gathered three falcons from Scotland and one from Sweden, and is hoping that their offspring will build up a productive stock which he will then be able to re-introduce to the wild. No quick results can be expected, though. The birds must be hatched in captivity or captured when they are very young, and no Peregrine has been known to breed in captivity before the age of five. Judging by the rate at which the natural population has been declining, there will be a sad hiatus during which no Peregrine at all will exist in the wild in Sweden. □

Canada's Science Council reconsiders its role

from David Spurgeon, Ottawa

EVER since the creation of the Ministry of State for Science and Technology (MOSST) in 1971, the status of the older Science Council of Canada, formed in 1966, has been in some doubt. The council was formed as an advisory body to the federal government on science policy, but this was also seen as one of the ministry's roles. Now, through public pronouncements made over recent months on the rede-