Breitenmoser, U. SCALP - A Regional Initiative for Lynx in the Alps. Drafting and implementing action plans for threatened species. Workshop, Bértiz, Navarre (Spain), 5-7 June 1997. Environmental encounters 39, 83-85. 1998. Strasbourg, Council of Europe. 1997.

Keywords: 78Eur/8CH/action plan/Alps/conservation/lynx/Lynx lynx/Malme/project/re-introduction/recovery/reintroduction/SCALP/status/translocation

Abstract: The initiative called "Status and Conservation of the Alpine Lynx Population" (SCALP) is not a thoughtful plan to re-introduce the lynx into the Alps, but rather the pragmatic attempt to re-vitalise and accomplish a process that started 25 years ago, when lynx from the Carpathian Mountains were translocated to several sites in the Alps. These early re-introduction projects were neither co-ordinated nor monitored, and the success of the translocations remained obscure. The uncertainty of the future of the lynx launched the SCALP programme, a joint effort of experts of all countries sharing the Alps to promote an action plan for the recovery of the Alpine lynx population. In this paper, the present status of the lynx in the Alps is summarised, the current problems are discussed, and the aims of the SCALP programme and the actions proposed to reach these goals are outlined.

SCALP - A REGIONAL INITIATIVE FOR LYNX IN THE ALPS

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Introduction

Large predators are vulnerable to human persecution, to environmental change and to habitat fragmentation, as viable populations need large suitable areas. This led to the extinction of large predators in most of Europe during the past centuries. Now, as we have given them legal protection, we need to develop action plans to let them return and coexist with man. As viable populations of large carnivores need extended space, we will have to manage them in areas that are also used by humans, manly for agriculture and recreation. Nowhere in Western or Central Europe exists a relatively natural area of the extent of the Alps - a contiguous area of approximately 200,000 km^2 of forests, pastures and alpine peaks. The lynx (*Lynx lynx*) - much more a species of the forests than of the mountains - found its last refuge in Western Europe in the Alps. No other region in Western Europe could host a potential population of the same size.

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Translocations in the 1970s and present status of the lynx in the Alps

The return and present status of the lynx in the Alps has been summarised in the first SCALP report (in press) by Stahl & Vandel for France; Breitenmoser, Breitenmoser-Würsten & Capt for Switzerland; Ragni et al. and Molinari for Italy; Kaczensky for Germany; Huber & Kaczensky for Austria; and Cop & Frkovic for Slovenia. The results of the status reports of all of the six participating countries were compiled into a single map drafting the present distribution of lynx in the Alps (Fig. 1).

There have been three regions with re-introductions in the Alps. The earliest releases were carried out 1970-76 at the north-western edge of the Alps in Switzerland. The resulting core populations are now concentrated in the western Swiss Alps and in the Jura Mountains, a secondary mountain chain north-west to the Alps. From the western Swiss Alps, lynx have expanded into France, probably through the region south of Lake Geneva. In the French Alps, lynx continue to spread and may have reached as far as 200 km into the region south of Grenoble. Also, they may have branched out through suitable habitat in the north-west and merged with the Jura population. Despite rugged mountains and high elevations, individuals must have crossed the border between Italy and France, and possibly also between Switzerland and Italy.

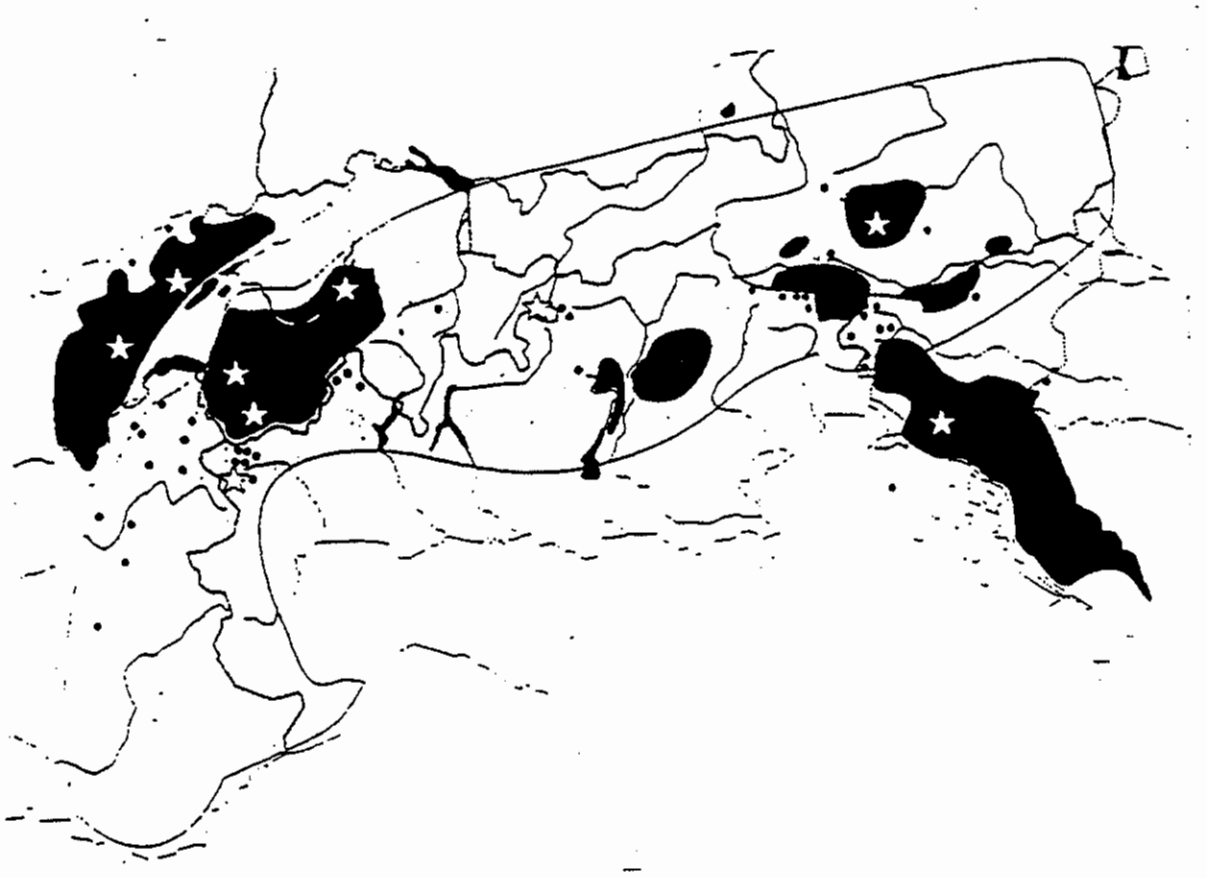

Fig. 1. Sites of releases (white stars) of lynx (*Lynx lynx*) and approximate present distribution of local populations (black areas) and isolated observations (black dots) in the Alps (grey zone) and adjacent regions. National borders are given in dotted lines, major rivers and the coastline in simple lines, major lakes in dark grey.

A second re-introduction was carried out in 1973 to the south-east of the Alps in southern Slovenia. This population expanded quickly, not only into Croatia, but also into the Alps in northern Slovenia. Other individuals have reached Italy and perhaps Austria. There was another re-introduction in Austria during 1977-79, of which animals have spread into several directions. There is a lot of uncertainty about the subsequent development in Austria, but observations have declined and there may be no established lynx population left in Austria. A re-introduction that certainly failed was carried out in the Engadine Valley in eastern Switzerland. A further lynx population originating from either dispersers of any of the above re-introductions or from clandestine releases was discovered in the Trentino in the Italian Alps.

The comparison of the individual reports of all six countries allowed several conclusions. It has become clear that after a first wave of enthusiasm about expanding lynx populations the picture is now more sobering. In all three re-introductions, a first phase until the mid 1980's showed concentrations of any records near the release sites, with some scattered observations and reported expansion of the ranges. Since 1985, a stagnation has been observed and range expansion is no longer a general phenomenon but only observed in some regions, despite the fact that large parts of the Alps have not been colonised (Fig. 1). Moreover, some of the core populations have suffered serious set-backs. The Swiss population has ceased the expansion to the east and south, the Slovenian population was hunted and the spread in the Slovenian Alps did not continue as expected, and the Austrian population may consist only of scattered individuals with no reproduction.

Problems of the Alpine lynx population

At present, the distribution of lynx in the Alps is still fragmented (Fig.1). The sub-populations are small and isolated, and some of them of questionable viability. Small and isolated populations are at high risk of extinction, because dispersal is vital to compensate for local declines induced by a variety of factors. As an additional problem, all of the re-introduced populations originated from few and perhaps even related founders (all lynx came from the same place), causing a high degree of inbreeding and the potential risk of an inbreeding depression. Throughout the Alpine arc, human activity is high, and lynx are suffering high levels of direct or indirect mortality of human origin. Collisions with traffic on highways and railway lines are frequent. Illegal shooting of lynx has been reported as a major source of mortality in several countries. The re-colonisation of the Alps has not occurred as expected from the release projects. But as a matter of fact, there were no clear expectations at the beginning of the translocation projects. The people promoting the re-introductions took a very local position. No one in the early 1970s reflected about minimum viable populations (MVP) and the genetic relation of translocated animals, nobody considered potential corridors or barriers for the expansion of the lynx when choosing the release site. And none of the projects were discussed with the local people or the authorities of adjacent regions. This lack of public involvement led to a very low acceptance of lynx, not only among interest groups such as hunters or sheep breeders.

An additional problem of the compilation of the first SCALP report was the lack of standardised monitoring. In all country reports, there were problems with assessing the reliability of reported lynx observations. Furthermore, we have no standards of how to interpret these data, in particular with respect to range expansion and population trends, and comparisons between different sub-populations.

A recovery plan for the lynx in the Alps

From the list of early errors and current problems we can define the basic necessities for an action plan for the lynx in the Alps. We need to

1. define clear goals and a time frame to accomplish them for the whole of the Alps and on national level;
2. evaluate for the whole of the Alps (1) the habitat suitability, (2) potential corridors for the connection of sub-populations and (3) barriers for spread of lynx in order to decide about further translocations;
3. start an information campaign with public involvement in favour of a better acceptance of the lynx by the local people.
4. develop a genetic surveillance of the sub-populations in order to recognise any genetic problems;
5. establish a monitoring system that allows (1) to survey each isolated population, (2) to compare the information between countries, and (3) to examine the progress of all actions.

Above all, the experience of 25 years of lynx re-introduction teaches us one lesson: No country in the Alps can carry out such a project on a local or even national level. We want (and need) to re-establish a lynx population stretching throughout the Alps, and consequently, we require regional and international co-operation. Furthermore, we need a system allowing for the co-operation between GOs, NGOs, scientists, and local people. This is not a simple task, as the Alps are a culturally and politically highly diverse region. There are not only four different languages, but also seven administrative systems, of which all have their particularities. France, for example, has a strong centralist power with nation-wide operating administrative units, whereas in Austria, no national office is in charge of lynx management. In Switzerland, nature conservation organisations such as the WWF have strongly engaged in the recovery of the large carnivores, but in Slovenia, no such NGOs are involved. As a consequence, a supreme strategy for the whole of the Alps must be adapted to and implemented on a national scale, in some countries with highly autonomous sub-units even on a provincial scale. International organisations should co-ordinate the actions and supervise the progress. This could be the Bern Convention from the Council of Europe for the GOs, and the WWF International or the IUCN for the NGOs.