

Global Shrike Conservation : problems, methods and opportunities

In remembrance of my dear sister Rita Van Nieuwenhuysse 06.10.1952 - 07.05.1999

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Shrikes are declining all over the world and need conservation very urgently. I give some arguments why shrikes should be conserved. I approach the problem of global shrike conservation using the framework for generic conservation actions as described by BirdLife International. Conservation can be seen as the combination of three elements: species protection, site protection and conservation of the wider environment. I illustrate the different situations of the legal status in different parts of the world and how this situation could and should be improved. The second part of the model includes the creation of population strongholds by special purpose management for shrikes inside protected areas. I give possible optimisation measures that could be included in the normal management programs of nature reserves. Since shrikes have a rather dispersed distribution pattern, the major part of shrike populations however can be found in the rural landscape. Therefore it is crucial to tackle the problem on a larger scale and work on influencing the political system to force people to take shrikes into account. I show how this is currently being done and how it could be improved. Finally I add another dimension that is crucial to the model: shrike promotion. Shrikes are almost unknown to the public and this must change if we really want to protect them. People need to be convinced of the importance of shrikes for mankind.

Keywords : Lanius; conservation, shrikes

Shrikes are declining

During the last decades shrikes have been reported to be declining worldwide. The conservation status of shrikes is given for different parts of the world.

The San Clemente Loggerhead Shrike *Lanius ludovicianus mearnsi* is endemic to

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the isle of San Clemente, California and is federally listed as endangered in the US. In Canada the subspecies *Lanius ludovicianus migrans*, the eastern population of the Loggerhead Shrike is listed as endangered, while the western Canadian Loggerhead Shrike *L. l. excubitorides* is listed as threatened (YOSEFF, 1996; CANADIAN LOGGERHEAD SHRIKE RECOVERY TEAM, 1992).

In Europe the current situation is very well documented for 5 shrike species by TUCKER *et al.* (1994). A detailed report on the decline and fall of *Lanius collurio* in the UK is given by PEAKALL (1995), the contraction of the breeding range of *Lanius minor* is given by LEFRANC (1993).

In Europe *Lanius minor*, *L. nubicus* and *L. senator* are listed as Species of European Conservation Concern, SPEC, category 2 (TUCKER *et al.*, 1994), i.e. species whose global populations are concentrated in Europe and which have an unfavourable conservation status in Europe. The Woodchat *L. senator* and Masked Shrike *L. nubicus* have both a vulnerable status and show large declines. *Lanius minor* has a moderate decline. *Lanius collurio* and *L. excubitor* rate SPEC category 3 i.e. species whose global populations are not concentrated in Europe, but which have an unfavourable conservation status in Europe. Both species show a moderate decline.

According to Mance-Lande criteria (HARRIS, in prep.), the status of the Sao Tome Fiscal Shrike *L. newtoni* in Africa is considered as Critical. The North African breeding population of the Woodchat Shrike is ranking Vulnerable. Another 7 *Lanius* species have an Unknown status while only 2 African species are Secure. The situation of all migratory species is Unknown.

The situation of migrating Brown Shrikes *Lanius cristatus* in Taiwan is illustrated by SEVERINGHAUS (1991). East Asia is the stronghold of the genus *Lanius* with the greatest known diversity of species. All seven species found in this region are classified as 'uncommon' (Yosef ms). In the Indian sub-continent, four of the five shrike species have been reported as 'declining' (Dr. Biswas, Bombay Nat. Hist. Mus.). Of the ten species found in Mainland China, six have been classified as 'uncommon' or 'rare', but populations of all ten species have shown a significant decline (Dr. Tso-Hsin Cheng, Endangered Species Scientific Commission, Beijing).

Remarkable in this context is the situation of the Red-backed Shrike *Lanius collurio*. Since the mid-80's *Lanius collurio* has been increasing its population densities throughout the core of its distribution range (VAN NIEUWENHUYSE, 1992a; KOWALSKI, 1999). The population numbers in my study area now exceed the numbers observed during the seventies. However the distribution range continues to shrink eastwards. The Flanders (Northern part of Belgium) saw a strong decline and shrikes went extinct there recently (VAN NIEUWENHUYSE, 1999) while 100 km to the south we see increasing densities. This feature makes the species of special importance for conservation actions.

Why are shrike populations declining?

Different reasons for decline have been discussed in the literature, as shown by TUCKER *et al.* (1994) for the five European species and by YOSEF (1996) for *Lanius ludovicianus*.

Nest predation by corvids is believed to be the main physical impact on shrikes by natural predators.

Agricultural intensification results in the removal of bordering hedges and the creation of larger parcels. The cessation of agricultural activities, e.g. grazing by cattle or sheep, lets the vegetation grow into forests that makes the habitat unsuitable for shrikes. Afforestation of low-quality grasslands accelerates this evolution.

Human developments, shooting, catapulting or trapping of the birds during migration is a direct impact of humans on both the birds and their habitat. In developing countries the physical impact by humans is more important as trapping and hunting are more frequent.

The climate seems to play an important role in the decline as well by the increased desertification of the Sahel and temperature and rainfall variations during the breeding season.

A direct impact of chemicals is the consequence of the use of pesticides and herbicides. Fertilizers are thought to have an indirect chemical impact by inducing a faster growing and denser herbal layer making it less favourable for grasshoppers.

Why protect shrikes?

One could consider decreasing numbers as a good incentive to conservation. Fluctuations however are not really exceptional, so why is it necessary to protect shrikes? At the first International Shrike Symposium, the non-shrikeologist rapporteur SAFRIEL (1995) gave several reasons to explain the importance of shrikes : shrikes could be used as promoters for science since they could serve as models for the perchers dilemma : how to succeed as predator and survive as prey? The birds are highly visible during the nesting period (VAN NIEUWENHUYSE *et al.*, 1995). The particular mating system featuring clustered distribution pattern and extra parental care, loop migrations, impaling of prey, make shrikes very interesting and uniquely useful for educational purposes. General ecological principles can be explained very well thanks to shrikes making them excellent study material. Their territories are very easily manipulated and the impact of such action is very easy to observe. They are also excellent bio indicators for grassland habitat quality monitoring and possibly for climatic changes assessment. Finally, why not protect them just because they are so beautiful and peculiar?

Shrike Conservation

Implementing four types of actions could conserve shrikes worldwide :

- Species protection : optimisation of the legal protection of the birds and their habitat.
- Protected sites actions : the actual conservation and management of shrike populations in protected areas to create population strongholds for the different species and to develop or optimise conservation tools.
- Conserving the wider environment : actions on the conservation of the wider environment since shrikes are dispersed species.
- Shrike research and promotion : shrikes need promotion too. No matter how much is known about them, if we don't create the right political environment for their conservation, we might end up witnessing their extinction.

Species protection

The current legal status is not the same everywhere and for all species. There is a gradient from the west to the east with an increase in the number of species and a decrease of the legal protection.

The 3 subspecies of the Loggerhead Shrike that are either endangered or threatened are legally very well protected with even special legal protection for the habitat. In Europe all shrikes are legally protected from trapping, trade, hunting. There are only general conservational laws protecting their habitat in Europe. In Africa and the Middle East many shrikes are trapped, hunted or catapulted because of the lack of real legal protection. In the Far East shrikes are still caught for human consumption (Severinghaus pers. comm.). In Asia, excepted in Japan, there exists no real legal protection for shrikes.

Harmonisation of regulations in all developed countries is needed. In the developed countries, the legal status of shrikes in the different jurisdictional unities should be improved by encouraging the governments to ensure the highest level of protection possible. In Canada, the CANADIAN LOGGERHEAD SHRIKE RECOVERY TEAM (1992) gave a high priority to encourage the governments of Ontario and Quebec to do this. In Europe only the Red-backed Shrike and the Lesser Grey Shrike are included in annex I of the Directive CEE 79/409 making special purpose measures by the different countries in the EU available. Expansion of this list for other shrike species is needed urgently.

Legal action will become necessary in the developing countries too, although this is a much more difficult task. Especially in African and Middle Eastern countries hunting should be regulated. Awareness projects like the Malta project of the Deutscher Bund für Vogelschutz making people aware of the importance of birds (HÖLZINGER, 1987) are of crucial importance.

Finally the export of forbidden pesticides in the developed countries must be banned (HÖLZINGER, 1987).

Protected sites actions

In the developed countries, the position of the protected sites is crucial for shrike conservation. In some cases all or a significant part of the remaining population breeds in reserves e.g. the Netherlands (ESSELINK *et al.*, 1995). In protected sites some high-density shrike populations need to be maintained or created. The reserves don't only maintain significant populations they are also ideal experimental playgrounds which allow us to optimise our conservation tools.

At first however an improvement of the sites protection is needed urgently. In the EU, all Important Bird Areas should qualify as Special Protection Areas under the Wild Birds Directive (Directive 79/409/EEC). This is only the case for 28% of them. A better protection and implementation of appropriate management plans are needed.

Proposals for management can be made on both the intra- and the inter-territorial scale. Interesting research in this area has been carried out (JAKOBER & STAUBER, 1987; VAN NIEUWENHUYSE, 1996; SCHÖN, 1998).

Sometimes the restoration of old agricultural practices without primary concern for shrikes, strongly improves their status. In the Netherlands the restoration of the Bargerveen peat-moor resulted in a very small-scaled mosaic-structured landscape ideal for large insects (ESSELINK *et al.*, 1995). Hence the re-colonisation of this reserve of 2000 hectares was striking and the population of Red-backed Shrike increased from 12 to 120 breeding pairs in 10 years.

Besides nature reserves, military terrains benefit from some legal protection. Many terrains are owned by the army and provide excellent grasslands. Especially vast heath areas are very important for shrikes. In Belgium some 1000 ha of agricultural lands were taken out of production in 1974 to become military practicing grounds (VAN DER ELST and VAN DER ELST, 1990). A spectacular evolution has taken place in favour of shrikes resulting in some of the highest known densities of *Lanius collurio* (VAN DER ELST, 1997). The San Clemente Island, featuring a whole array of endemic species, is owned and guarded by the U.S. Navy. High funding makes conservation highly successful on this island under the best circumstances (MORRISON *et al.*, 1995).

Other opportunities are offered by waste-deposits and landfills as shown in Berlin (RATZKE & SCHRECK, 1992).

Finally, in some exceptional cases, land of special importance should be bought. The Loggerhead shrike in eastern Canada only counts up to 350 pairs, with more than 100 pairs breeding along an old railway. In this case the acquisition would allow the conservation of 1/3 of the total population, making it very urgent (COLLISTER & HENRY, 1995).

It is obvious that since the conditions in reserves are rather artificial, it will not be possible to protect any population of a shrike species just by implementing such recovery actions. These experiments however allow us to optimise and assess the feasibility and effectiveness of the management techniques (see research). The reserves constitute a laboratory where we can optimise our management tools. In some cases reserves provide a suitable habitat for important parts of the populations and therefore can be seen as nuclei sustaining populations living outside them (VAN DIJK & HUSTINGS, 1999).

Our ideas are useful for European or North American shrikes, but the situation is quite different in Africa and Asia. These continents are so vast and so rich in shrike species and numbers that other actions are needed, concentrating mainly on the rural or forestry environment.

Conservation of the wider environment

The actions on the wider environment as suggested for Dispersed Species by BirdLife International are remarkably applicable to shrikes.

It is obvious that actions on the wider environment need to be seen in an economical perspective. Both agricultural and ecological sustainability need to be aimed at. Farmers need to keep suitable habitats for shrikes through their normal agricultural activities (VAN NIEUWENHUYSE & VANDEKERKHOVE, 1992).

Re-allotment

Planning regulations and environmental impact assessments should be advised by conservationists in order to minimize impact of human developments. In most European countries shrikeologists have participated in the planning of some re-allotment schemes, finding an optimal combination between land-use for agriculture and nature conservation (LEFRANC, 1993; VAN NIEUWENHUYSE, 1992b). The advice however is not obligatory, and the real implementation is not always as suggested. More imposing rules are needed to force the re-allotment agencies to take the advice of the conservationists into account. Finally the CANADIAN LOGGERHEAD SHRIKE RECOVERY TEAM (1992) provides advice and assistance to the Prairie Farm Rehabilitation Administration for the management of community pastures.

Forestry

Regulations on forestry and agriculture must be expanded and strengthened. In Sweden the government sponsors afforestation of disused grassland and, nowadays, there are no longer forest clearings of large dimensions (SÖDERSTRÖM *et al.*, 1998). Those measures are negative for shrikes. Forestry planning should consider shrikes and implement measures diversified in both time and space to create favourable conditions for different species including shrikes. Clear-cuts should be allowed at scales suitable for shrikes.

One of the main causes of decline of shrikes is the agricultural intensification (TUCKER *et al.*, 1994). Measures to influence the intensity of agriculture practices should be studied. For example, extensification of grazing is needed where the intensity of the agriculture is too high. Maintaining grazing in low-intensity farming is also needed to keep open habitats. In the European Union, the Agri-environment Regulation (EC Reg. 2078/92) of the Common Agricultural Policy provides an opportunity to support farmers who implement some of these measures (VAN NIEUWENHUYSE *et al.* 1997). In Eastern Europe, land-tenure agreements could be used to protect some preferred habitats when converted from state to private ownership (TUCKER *et al.*, 1994). General agricultural financial support policies should always incorporate environmental objectives and the subsidising of set aside lands should be diversified to allow the lands to become suitable habitats. A good example of sustainable agriculture with respect to the Lesser Grey Shrike *Lanius minor* is a shrike-winery project in France (VIGNERONS DU PAYS D'ENSÉRUNE, 1996). The grape is grown in extensively managed vineyards where *Lanius minor* occurs. Part of the benefits goes to shrike conservation. Similar protection of occupied sites through economical incentives is done in Canada too (Canadian Loggerhead Shrike Recovery Team 1992).

Small-scaled optimisations by local communities

Local communities need to be motivated to take initiative in their normal landscape management. Creation and management of hedges along community roads should be promoted. The creation of hedges, such as Benjes hedges (BENJES, 1992), is very cheap. The communities should organise the management of the sideways with planning for rotation in time and space. Communities could also sponsor the planting of hedges or fruit trees to improve habitat. Restoration of old orchards for the Woodchat and Great Grey Shrike is fundamental (TUCKER *et al.*, 1994). Awareness actions should influence local authorities towards these goals.

It should be clear that this whole array of possible actions is no longer traditionally done by conservationists. Therefore the study of conservation biology of shrikes needs to encompass topics that are not addressed presently. Special purpose research therefore must go beyond the biology of shrikes *sensu stricto*, and pay more attention to influencing factors. On San Clemente Island studies were carried on the biology of important predators like the feral cat (MORRISON *et al.*, 1995). In Canada shrikeologists work on agro-environmental issues too (CANADIAN LOGGERHEAD SHRIKE RECOVERY TEAM, 1992). Attention needs to be paid to the study of farming systems of high conservational value. In Spain this resulted in the collaboration of farming unions, the regional administration and the Spanish Ornithological Society for maintaining appropriate farming systems for steppic species (TUCKER *et al.*, 1994). Such schemes not only benefit birds but also other wildlife and secondarily address issues of broader concern including agricultural over-production and rural de-population. Similar actions are seen in Canada (CLSRT, 1992).

Shrike research and promotion

The International Shrike Working Group discussed the priorities for shrike research and conservation. (TEMPLE, 1995). The most important research topics were shrike habitats, predator-prey relationship, ecology of shrikes outside the breeding season, dynamics of shrike populations and development of effective conservation strategies. It is obvious that the importance of conservation in the research becomes increasingly high, paying much attention to aspects that can be applied in conservation policy. Influenced by the two International Shrike Symposia (YOSEF, 1993 and 1996), a generalisation of the knowledge of individual species is taking place at an increasing pace. Application of study methods is now being done for more than one shrike species. SCHÖN (1994) considered his habitat model for the Great Grey Shrike in relation to other shrike species. HERNANDEZ (1995) did similar research on two shrike species. The recent availability of computer technology makes modelling much faster. Parameterisation of digital models for all shrike species is certainly possible. The usable area model as defined by ROTHHAUPT (1996) for the Great Grey Shrike was applied for the Red-backed Shrike by SCHÄFER (1996). Multivariate analysis of occupied territories and unoccupied territories can yield the principal components of habitat elements for different species (VAN NIEUWENHUYSE & VANDEKERKHOVE, 1992). Species-independent computations prove the validity of the models and make it possible to consider conservation actions for poorly known species in Asia and Africa.

As shrikes' future depends on farming practices, special farming techniques should be maintained. Hedge trimming by volunteers has been carried out in Belgium and Germany. In this way, shrikes are cared for directly by maintenance or creation of new habitat and indirectly by the establishment of good will between farmers and conservationists. In some cases this goes even further e.g. viticulture in France (VIGNERONS DU PAYS D'ENSÉRUNE, 1996). Most of the promotion of shrikes however takes place in educational activities: i.e. books, lectures or thematic excursions, thematic volumes of ornithological journal e.g. *Vogeljaar* (1993), Artenschutzsymposium NEUNTÖTER (1987), *Aves* (1999). In 1999 the 3rd International Shrike Symposium will be held in Gdansk, Poland, bringing together enthusiastic shrikeologists from all over the world. Finally all shrike-related activities are coordinated by the International Shrike Working Group.

Priorities for shrike conservation

The threats are not the same for all shrike species worldwide. Most shrike species are to be found in the least studied parts of the world. One of the major threats there is lack of knowledge. In developed countries there is a lack of interest in shrikes and nature conservation in general, making it very hard for shrikes to survive with increasing intensity of land-use. There are also financial inequalities, not only between the developed and developing countries but even within Europe. Eastern countries have relatively stable shrike populations but their economical status does not allow much professional research. More high-tech research will need to be done in the developed countries where shrikes

are considered from an economical point of view. The results of this research, applicable and generalised digital models, must be exported to the developing countries to be tested and implemented on all shrike species there. *Lanius collurio* and *Lanius excubitor*, some of the best-known species are excellent bases for models and can serve as advertising material to convince sponsors of the importance of shrikes. Recently the Red-backed Shrike even showed significant increases (VAN NIEUWENHUYSE, 1992a; KOWALSKI, 1999) offering conservationists a flagship species for conservative actions that are likely to succeed.

In developing countries research on taxonomy and conservation status of shrikes is crucial. In developed countries, recovery plans (CANADIAN LOGGERHEAD SHRIKE RECOVERY TEAM, 1992; MORRISON, 1995) need to be implemented for all species in the very short term. The ignorance of authorities and even of the ornithological world towards dwindling shrike populations (e.g. PEAKALL, 1995) can only be countered with detailed scientific information and concrete recovery programs. Probably the best way to convince the world of the importance of shrikes is their use as indicators for global climate change effects (SAFRIEL, 1995).

Conclusion

In conclusion we can say that shrikes need to be conserved and that immediate action is needed. In Africa and Asia, we have to learn about taxonomy, distribution and population numbers. The legal protection in these areas is a major concern. In Europe and North America population strongholds need to be created in protected sites and the management tools need to be studied and optimised. Attention needs to be paid to the wider environment in order to conserve the dispersed shrike species. Different actions are possible on small and large scale to influence decision-making. Generalisation and parameterisation of knowledge is now taking place to allow the conservation of shrike species that are poorly known. Finally one of the last task in shrike conservation is the need for shrike promotion.

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RÉSUMÉ - Mesures générales de protection des pies-grièches : problèmes, méthodes et améliorations possibles.

Les pies-grièches sont en voie de disparition dans le monde entier et ont besoin de mesures de protection urgentes. J'aborde la question de la protection mondiale des pies-grièches en utilisant le canevas de travail établi par BirdLife International pour la conservation d'une espèce. On peut voir la Protection comme la combinaison de trois éléments : protection de l'espèce, protection des

sites et protection de l'environnement au sens large. J'expose les lois en vigueur dans différentes parties du monde et comment elles pourraient et devraient être améliorées. Une harmonisation du statut légal des pies-grièches doit être mise en place : il faut pousser les gouvernements des pays développés à adopter des lois assurant une protection maximale aux pies-grièches. Des mesures doivent également être prises dans les pays en voie de développement, comme l'interdiction de chasser les pies-grièches en Afrique et au Moyen-Orient.

La deuxième partie de l'étude s'attache à la création de sites spécialement aménagés pour les pies-grièches dans des zones protégées. Je fais des propositions pouvant être incluses dans les programmes de gestion des réserves naturelles. Quoique l'aire de distribution des pies-grièches soit assez large, on les retrouve surtout dans les campagnes. Il est donc essentiel de s'attaquer au problème à une très large échelle et d'influencer les orientations politiques pour que des lois obligent l'homme à tenir compte des pies-grièches. Au niveau du développement des terres agricoles et forestières, des échanges entre les gouvernements, les écologistes et les défenseurs de la nature sont très importants pour établir les lois et les règlements au sein desquels la protection des pies-grièches sera incluse. Je montre comment cela est réalisé actuellement et comment cela pourrait être réalisé. Enfin, j'ajoute une nouvelle approche qui est essentielle au projet : promouvoir l'image des pies-grièches. Le public les connaît très peu et cela doit changer si nous voulons éviter leur disparition. Il faut convaincre que la survie des pies-grièches est importante pour l'humanité.

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