

hatched in a distance of more than 100 km up to 300 km come to breed here. We found out other characteristics only after 6 years of marking: infidelity among the pairs

seems to be the rule, the species (but not the individuals) is faithful to “micro sites” (some areas within hundreds of hectares).

## Evaluation and protection of the Montagu's Harrier in France

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The situation of Montagu's Harrier in Western Europe and particularly in France is alarming. Approximately three quarters of the pairs in France breed in cereals (between 50 and 95% according to the regions, LEROUX, not published).

The original natural habitats of the species: heath, marsh lands, and plains have become rare and/or have been transformed by agriculture. The harriers, like all species tied to agricultural areas in the plains, are decreasing under the impact of intensified agriculture (DONALD 2001, MILLON et al., in prep.).

This intensifying has two sorts of negative effects:

- A direct effect by destruction of the nests by reaping the temporary prairies (lucerne, cultivated grass) and above all the reaping of the cultures (wheat, barley and rape to a smaller extent);
- An indirect effect by the reduction of natural prairies (not cultivated) and of the population of *Microtus arvalis*, main prey of Montagu's Harrier in the west and in the majority of the agricultural plains in France, as well as other prey: big insects and small birds.

The different ways of evaluation

The annual united efforts of protection of the nests (mission FIR/LPO) are not enough to provide a tendency (transparency MILLON 90s).

Since 1995 five groups have been observing in a standardized way, each in an area of 100-600 km<sup>2</sup>, five populations fluctuating between 10 and 100 breeding pairs every year. (MAP France: d17, d79, d33, d49, d52). The young are ringed before leaving the nest and a part of the breeding adults is marked in the scope of a scientific program on the species' population.

In ten other sectors (particularly in the Marais Poitevin) operations of comparable importance take place for 30 to 60 breeding pairs each year, but the areas, the teams and the coordinators differ in the course of the years; thus the evaluation is less reliable. For several years the nests have been saved and the young ringed (Vendée, Lorraine, Massif Central, etc.).

Finally, in the scope of a current national research on breeding raptors in France (2000-2002), more than 1000 squares of 25 km<sup>2</sup> distributed accidentally on the whole national territory will provide a controlled quantitative sampling: the basic scientific facts necessary for the future tracing of the populations.

## The operations of saving Montagu's Harrier in France (balance and perspectives)

### The different methods of protecting the nests

The first endangered nests are those situated in meadows that are cut. The meadows or also lucerne are cut from the beginning of May and then there are two methods of saving the nests.

- The square method consists of letting some square metres uncut around the nest. We must negotiate with the farmer who has to leave 10 to 25 m<sup>2</sup>. The greater the surface the smaller is the risk of predation.
- If the farmer does not cooperate, the young must be raised in a centre specialized on birds of prey and afterwards released on a post.

1. The wire method is being used more and more often because it allows the protector to be absent during the cutting/threshing. But you must pay attention: the cutting/threshing is sometimes made by teams who are not acquainted with the places and the nests. Sometimes the threshing is done by night. We recommend to use 8 metres of chicken wire with meshes of 30 to 40 mm and a height of 1 metre, held by 3 to 4 poles and tied to the ground with tent pegs to keep out predators. Two other methods are also being used currently: the "straw method" and the displacement of the nest.

2. The straw method: this means taking away the nest before the combine harvester arrives and then reinstalling it afterwards. The farmer may lift the cutting rod (bar) in order to replace the nest afterwards with straw pressed around. You must use gloves in order to leave no smell, above all when the young are still very small. Afterwards the excrements and prey

remains are not taken away by the female systematically, so that predators may scent the nest from far. The discretion of the nest is essential: it must not be taller than the stubbles but must blend with them in order to prevent unwanted visits to the nest.

3. The displacement of the nest in a less advanced culture is also often chosen. For this method the chicks must be 10 days old at least. From the barley or winter crops reaped very early to later crops, sunflowers and fallow land it depends from the nest's environment and the age of the chicks. Displacements from 100 to 200 metres at once are reached each year, but in this case you must show the chicks while displacing them so that the parents can locate them more easily. Successive displacements are possible in extreme cases, and the distance from the original nest may reach 500 metres! Wires in sunflower fields are also used, but in this case it is recommended to inform the owner of the field if possible.

The precautions in all these cases are: discretion towards humans, touching the vegetation as little as possible or with gloves, wearing rubber boots, in order not to leave any smell and not to trample down the vegetation between the edge of the field and the nest, which means making large steps and walk between the rows of cereals.

The introduction of a chick into another nest is not to be recommended as the observation of young harriers reared in captivity has shown that the best fed birds have a higher probability to live longer and thus reproduce themselves in the following years (BRETAGNOLLE et al., comm. pers.). It is thus useless to make survive more birds if the probability of taking part in reproduction of each of the birds of the nest is reduced. In other words: it is better to produce less young but in good condi-

tion than to produce young that are disadvantaged. The growth rate of the population depends more on the survival and the reproduction success of the individuals than on the number of fledged young. (NEWTON, 1991, LEBRETON et al. 1995).

### Protection of the environment

For many years we have tried out various techniques of nest protection in the fields and all protectors have experienced how much time and energy this costs. Saving a nest in a cornfield takes 2 to 6 half-days including observation, visit(s) to the nest, contacting the farmer and presence during reaping. These operations also take a considerable amount of kilometres. Volunteering not being an inexhaustible source there is a risk of weariness and discouragement of the organizers and protectors. The existence of some pairs still in natural habitats (heather, marshes, fallow land) gave us the idea of acquiring and managing these areas for the harriers.

This method of acquiring or leasing land has not yet been sufficiently extended although regional "site conservatories" have been created. As far as I know there is no survey on acquisitions and their managing on a national level.

In 1985 we made the experiment of ac-

quiring by buying a first plot of land on a vast site in natural wetland prairies in the heart of the Rochefort marshes. On this site (30 hectares) there have been up to 28 pairs and regularly more than 10 for 15 years: this is the biggest colony known today with such a density because the average distance between the nests is about 60 metres! In 1995 we owned 15 hectares of land, which have been managed as extensive pastures by plot rotation (1 year food for cattle, 3 years fallow land for the birds). This example should be followed by other similar operations especially in cornfields where experiences of managing fallow land could have led to experiments of growing plants suitable for natural fertilization and for the nests of the harriers or for other endangered species (e.g. partridges). This attempt is presently the object of a project in the "Poitou-Charentes"

There are still several regions in France where we can find natural habitats for the harrier nests: the heath in Bretagne (20–40 pairs), in the Poitou (20–30 pairs) and in the "Massif Central" (30 pairs in the Limousin), marshes on the coast in the west, "maquis" in the south, low reforestation in some regions.

"Protection Busards" is about 20 000–30 000 Euros/year.

## Verbreitung, Bestandsentwicklung und Schutzstrategien der Wiesenweihe in der Estremadura (Spanien)

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Die Wiesenweihe war bis etwa 1970 ein häufiger und weit verbreiteter Brutvogel in den Steppengebieten der Estremadura. Die Intensivierung der Landwirtschaft führte zu einem starken Rückgang der

Wiesenweihe. Wurden 1990 über 1000 Brutpaaren gezählt, waren es im Jahre 2001 noch 680 Paare. In Wirklichkeit dürfte der Rückgang noch größer sein.

Bereits 1983 begann die Adenex, die Na-

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Zeitschrift/Journal: [Ornithologischer Anzeiger](#)

Jahr/Year: 2002

Band/Volume: [41\\_2-3](#)

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