

NEW ATTEMPT OF USE OF REMOTE CONTROLLED
MODEL AIRCRAFTS

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FRANCE

INTRODUCTION

The idea to use radio controlled scale models to frighten birds is not a new one since New Zealand, Netherlands and Canada services have performed tests of this kind during 1965 and 1973 (ref. 1+4). As these experiences appeared limited (few species frightened, no habituation test) but sometimes promising, it was decided to resume operations in France from 1976 with several models in different ornithological situations. This article makes the synthesis of last tests and results obtained.

I - FEATURES OF MODELS USED

Two types of silhouettes were tested :

- models looking like a predatory raptore
- models looking like a small aircraft.

1.1 Models similar to a raptore

- Two versions presenting a form closely related to the buzzard one (circus sp) or to a big falcon (falco sp) were tested.
- One version equipped with a petrol engine (super tiger type, G 60 RC, 65cm^3) : wingspan 1,8 m, weight 2Kg, wings without ailerons, autonomy 15 minutes, paint : brown flecked with black (photo 1).
- One version equipped with an electric engine (ELF type Max 30 G, lower : II4 W), wingspan 2 m, weight 2,8kg with 2 rapid charge batteries, autonomy 5 minutes ; battery chargeable in 30 minutes through a 12 V battery (photo 2).

1.2 Models similar to an aircraft

The two forms tested are near the Cessna 172 or 180 ; they are :

- an aircraft PR0GO, wingspan : 1,6 m, with ailerons, weight 2,5 kg equipped with an engine 0.5 50 FSR of $7,5\text{cm}^3$, paint : white photo 3).
- an aircraft RUBIS, wingspan 1,5 m, with ailerons, weight 2 kg equipped with an engine Micron of $3,5\text{cm}^3$, paint dark red (photo 4).

This latter model is robust, light, cheap, easy to pilot and to disassemble : it is well adapted to this technics.

II - TESTS OF BIRD FRIGHTENING

About thirty tests have been made either in the S. E. region of France (1976) or in the Paris region (1981-82). Results can be summed up as follows :

- no efficiency difference whatever the model tested can be as soon as it is in the air, birds on the ground take flight, flock (ducks, starlings) and leave the perturbed area. The form of the model seems to be of no importance (ref. 5).

The following species have all shown similar reactions at the view of a hunting peregrine falcon (immediate flight with flock formation, lying flat on the ground, or birds like gulls taking refuge on the water) : they are : teals (*anas crecca*), mallards (*anas platyrhynchos*) lapwings (*V. vanellus*), starlings (*sturnus vulgaris*) black headed gulls (*Larus ridibundus*) wood-pigeons (*columba palumbus*).

Conversely the flight manner (attack by flight skinning the ground, dives, bird tracking) has an influence on the frightening duration.

As for many other methods, the frightening duration is mainly depending on the bird motivation to visit a specified area : in winter, lapwings at rest in cultures, have been driven away for 2,5 hours ; 600 wood-pigeons feeding in barley fields in June, have been frightened for 3 to 12 minutes, when they refused to leave with live shells and shell crackers ; pigeons of the same species "at rest" on a lawn were not back one hour after the intervention. For these reasons it is very difficult to evaluate with accuracy the

the efficiency of a process ; numerous tests are necessary, by driving away the same birds, the same day with different methods, to be able to establish comparison between them.

Concerning the habituation tests, they have not begun seriously to this date.

III - ADVANTAGES AND DRAWBACKS OF THE METHOD

Mains advantages observed are :

- the pluri-specificity of this technics which gives good results on species not having distress call (pigeons) or difficult to drive away (lapwings).
- the range important enough (300 meters around the pilot) allowing to easily reach birds sitting in places difficult to reach (cultivated lands, wastelands, marshes etc...).
- the control of direction taken by birds : the manoeuvrability of the model allows to drive birds outside the airport limits by pushing them into low traffic areas.
- at least the great motivation of people using this process more attractive than standard frightening methods.

Conservely numerous drawbacks limit very much possibilities of the operational use.

Piloting is very delicate because the model must be swift ; birds airport traffic must be observed in the same time. Consequently an agent having already some experience in aero-modelling must be found among the personnel in charge of the fight against bird hazard, because a complete learning of piloting is long and difficult.

- Meteorology has also to be considered : a good horizontal (800 m) and vertical (300 m) visibility, no heavy rain, no wind gust (< 30 kts) are required.

- Transportation and maintenance of models are also a matter of importance : starting difficult in winter, large dimensions required to see them at distance excluding a car transportation without wing disassembly...

For these reasons interventions take long time (10 minutes at least) prohibiting the possibility to use this method on a high traffic runway.

Finally on large airports it is sometimes difficult to practice intervention in the air traffic without risk of incident.

CONCLUSION

The first tests show that it is not possible to solely use this process to fight against bird hazard on an airport. We must consider the aero-modelling as one another tool to the range of frightening methods ; that tool may be used by skilled operators of the bird patrols control when conventional technics do not give satisfaction (high concentration of lapwings and pigeons sitting on an airport, for instance, in areas

difficult to reach).

In the future an aircraft of the RUBIS type will be committed in a permanent way to the care of qualified operators from reporting offices of Paris Orly and Toulouse-Blagnac, in order to test the feasibility of this process on the operational point of view as well as the bird habituation.

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PHOTO 1



PHOTO 2

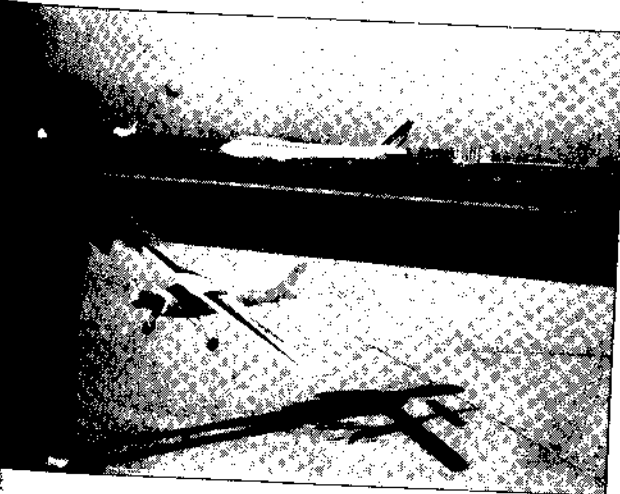


PHOTO 3

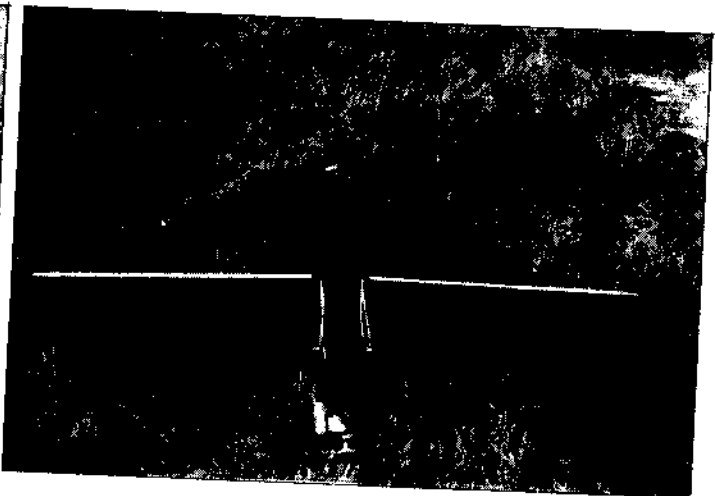


PHOTO 4