B.S.C.E 15 / W.P.

BIRD STRIKE COMMITTEE EUROPE

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SOME PROPOSALS FOR ALTERNATIVE GROUND-COVERING VEGETATION ON AIRFIELDS

The occurence of birds on airfields is an increasing flight-safety problem. A lot of reasons for bird-occurence can be given: the airport itself is an open and attractive place for birds, the presence of garbages in the near of the airfield, different types of vegetation, grassland, agriculture etc.

A partial solution of this problem can be found on an ecological base by envirnmental management.

There are two types of vegetation on airfields: grassland and agriculture. In the case of agriculture (crops) there are several restrictions imposed to minimize the negative aspects of it. In the case of grassland the long-grass method is recommended but even then many disavantages still remain.

Therefore it seems interesting to look for alternative groundcovers. The main requirements of a plant for airport cover are on one hand:

- not to be attractive to birds
- to have a not too expensive propagation and planting
- in the early stages to be able to resist the effects of wind
- to dominate other plants and to be useful during the whole year

etc....

and on the other hand to fulfill the special requirements for airfields such as:

- to sustain forced landings
- to resist vehicular traffic
- not to constitute an undue fire hazard

etc...

Such plants should first be theoreticaly examined on their morphological and ecological features. Those that satisfy the above requirements can be submitted to experiments for many years.

To illustrate this we did some theoretical research on some plants: Vinca minor L., Galium aparine L., and Hedera helix L. They seemed to be interesting alternatives at first sight.
Starting from their morphological and ecological features, we examinated those plants theoretically to see whether they meet the needs of the practical requirements of a plant used for airport cover.

The results of this study are conveniently arranged in a table:

Of course much more research has to be done i.e. about the operational utility, propagation and planting and experiments should give answer on a lot of questions.

The main purpose of this approach is to re-open the investigation whether grassland is still the best cover for airfields.

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Galium aparine L.

Hedera helix L.

Vinca minor L.

	Vinca minor L.	Hedera helix L.	Galium aparine L.
Attractivity to birds	Not-attractif.	The berries are attractif to birds, but the vegetation can be kept in a vegetative stage.	Not-attractive.
Groundcovering	Total groundcovering. Vegetation with suitable height: 15 - 20 cm.	Total groundcovering. Vegetation with suitable height: 10 - 25 cm.	Total groundcovering. Vegetation with suitable height: 10 - 25 cm.
Resistance to vehicular traffic	Good.	Good.	Good.
Operational utility	Evergreen. Useful during the whole year.	Evergreen. Useful during the whole year.	Annuals - Winterannuals(This could be a problem especially during the winter.
Fire-risk	None.	None.	None.
Suitability to forest landing	Good.	Good.	Good.

	Vinca minor L.	Hedera helix L.	Galium aparine L.
Competition i.e. to other plants	Dominant over other plants.	Dominant over other plants.	Dominant over other plants.
Spreading-factor	Rather slowly.	Rather quickly.	Rather quickly.
Propagation	There will be a propagation because of the spreading-factor. (for example: to remove other plants) . This propagation will end when the vegetation reaches a suitable density.	Vegetation can be kept in a vegetative stage. Flowering stems (with berries) can be removed mechanical.	
Planting	Reproduction: by cutting. Sowing period: march - april	Reproduction: by cutting. by creeping stems. By seed.	Reproduction by seed.

	Vinca minor L.	Hedera helix L.	Galium aparine L.
Morfological features	- Perennial weed (2), plants woody -Stems creeping, flowering branches erect. - Leaves elliptic, leathery and shiny. - Sepals 5 Petals 5. - Flowers from march to june, often again in october.	- Cimbing woody vine, perennial, sometimes shrubby. - Stems creeping, flowering branches erect. - Leaves leathery, shiny and evergreen. - Sepals 5 Petals5 berries. - Flowers from september to december.	- Herbaceous annuals or winterannuals. - Stems climbing, plant with tendrils. - Leaves 6 to 9 per node. - Petals 4 - Flowers from may to october This plant seems to be interesting when we look to his morfological features. It has very harsh, downward-pointing prickle-like hair or barbs along the angles of the stems, the leaves and the fruit, these catching or clinging to clothing, skin and fur from man and animals.

Ecological features	- Light factor: preferes shadow-area. - Moisture factor: in moderately moist soils. - Acidity: indifferent. - Nitrogen factor: in soils medium or rich on N. - Temperature: temper to zone.	- Light factor: preferes semi-shadow area. - Moisture factor: in moderately moist scil. - Acidity: indifferent. - Nitrogen factor: indifferent. - Temperature: temperate zone.	- Light factor: preferes semi-light area. - Moisture factor: indifferent - Acidity: indifferent. - Nitrogen factor: in soils rich on N. Temperature: temperate zone A problem can be put by the demand for". The plant is a bioindicator for N and loam.

Note

(1) Annual: weeds which germinate, bloom, produce seeds, and die in one growing season.

Winterannuals: weeds witch germinate and produce, a leafy rosette in the fall and then bloom, seed, and die in the following summer

(2) Perennials (woody): weedy trees, shrubs and woody vines which live for many years, producing new growth each year from their aboveground stems, branches and twigs, and in some cases from underground stems, or roots, or crowns.