



HAL
open science

Inventory of biodiversity in poplar stands in the Picardie Region

Alain Berthelot, Sylvie Augustin, José Godin, Guillaume Decocq

► **To cite this version:**

Alain Berthelot, Sylvie Augustin, José Godin, Guillaume Decocq. Inventory of biodiversity in poplar stands in the Picardie Region. 22. session internationale poplar commission: The contribution of poplars and willows to sustainable forestry and rural development, Nov 2004, Santiago, Chile. p. 79. hal-02826155

HAL Id: hal-02826155

<https://hal.inrae.fr/hal-02826155>

Submitted on 7 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



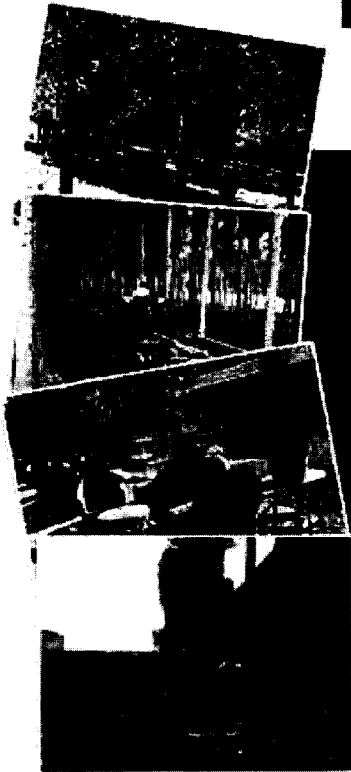
INTERNATIONAL POPLAR COMMISSION

22nd Session

Santiago, Chile, 29 November – 2 December 2004

THE CONTRIBUTION OF POPLARS AND WILLOWS TO SUSTAINABLE FORESTRY AND RURAL DEVELOPMENT

Abstracts of Submitted Papers



**International Poplar Commission
Forest Resources Division
Forestry Department**

**Working Paper IPC/2
FAO, Rome, Italy**

INVENTORY OF BIODIVERSITY IN POPLAR STANDS IN THE PICARDIE REGION

Alain Berthelot¹, Sylvie Augustin, José Godin, Guillaume Decocq

Biodiversity inventories were carried out in the Picardie region (in the north of France) on poplar plantations of various ages and situations. These inventories referred to three biological components: (i) ground-beetles, (ii) birds, (iii) vegetation.

For the ground-beetle study, some of the poplar stands could be compared with other border environments: cereal fields or broadleaved forests. The results showed that the specific richness of the poplar stands in the Picardie region varied according to sites but were overall high for the three components. The ground-beetle specific richness was very variable according to the studied sites, the highest being found on alluvial sites. The populations of ground-beetles seem to be structured according to soil moisture, vegetation cover and, to a lesser extent, soil pH. Differences were rarely significant. The comparisons carried out in 2003 with border environments indicated that specific richness in poplar stands is higher than in broadleaved forest and equivalent to that in cereal fields. The Shannon index and Equitability index (species distribution) were higher for poplar plantations and broadleaved forest. Ground-beetle populations in cereal fields were very unbalanced. The poplar stands seem able to accommodate species of open environments and forest species in balanced proportions.

For bird communities, poplar stands located on alluvial sites had higher specific richness and diversity than those located on the *plateaux*. Specific richness and diversity decreased with the age and canopy closure. The avifauna was primarily made up of ubiquitous species of closed forest environments. Species of open forest environments are more frequent in young poplar plantations without understorey. It seems there is no specific avifauna for poplar stands, except for *Oriolus oriolus*, which was very frequently observed.

Plant communities, in spite of the homogeneity of overstorey, were well diversified. The variety of sites, soils and previous vegetation could explain this diversity. This high specific richness could be due to suitable conditions (water and nutrient availability) of alluvial soils on which poplars are cultivated. The plant communities were structured by number and type of tendings (disks or mowing). The resulting disruptions tend to support the specific diversity, but, on the other hand, reduce the "phytosociological coherence" of the communities. The increase in available resources (light, water, nitrogen) benefited the cultivated poplars, but also sometimes the heliophilous social species (for example *Rubus spp* on *plateaux*) that compete strongly with other species.

Key Words: poplar, biodiversity, ground-beetle, bird, vegetation.

¹ AFOCEL, Station Nord-Est, route de Bonnencontre, 21170 Charrey-sur-Saône, France. E-mail : alain.berthelot@afocel.fr