SUMMARY

Amphibians of the Łagiewnicki Forest in Łódź

From March 1996 to July 1998 an intensive survey of amphibians was conducted at 13 sites. The main objective of the study was to determine the current abundance, diversity and distribution of amphibians within and outside the Łagiewnicki Forest (1200 ha) which is situated in the northern part of Łódź, central Poland (Fig. 1). The Łagiewnicki Forest is bordered by agricultural and urban (Łódź) developments. The forest is under very strong pressure of the Łódź agglomeration. It is, particularly during weekends, the main walking area for the people inhabiting Łódź.

Most of the study sites were ponds situated on the slowly flowing Bzura and Łagiewniczanka Rivers and their tributaries. The rivers have been dammed in many places in order to create ponds for leisure purposes. When close to one another, ponds of the same type were treated together as one site. Each study site was investigated 7-8 times a year and at least two checks were done during warm nights in May and July. Adult anurans were detected both visually and aurally. Amphibian larvae and adult newts were sampled with a net and traps.

Ten taxons were found in the study area (Tab. 3). According to the frequency of occurrence in space (percentage of localities with the species recorded) the species were: smooth newt *Triturus vulgaris* (92%), common frog *Rana temporaria* (85%), moor frog *Rana arvalis* (85%), common toad *Bufo bufo* (77%), spadefoot *Pelobates fuscus* (69%), warty newt *Triturus cristatus* (62%), pool frog *Rana lessonae* (54%), green frog *Bufo viridis* (15%), edible frog *Rana* kl. *esculenta* (15%), tree frog *Hyla arborea* (8%). The highest diversity (8 species) and abundance of amphibians was noted at site no 10 (Fig. 1, Tab. 3) which was located in an open environment at the forest edge. The most widely distributed and abundant species in the study area were common toad, common frog, moor frog and smooth newt. The highest number of specimens (over 1500 of breeding adults) of the common toad was recorded in the pond (site 6, Fig. 1, Tab. 3) located on the slow-moving Łagiewniczanka River. The warty newt breeds mainly in ponds inside the forest and always in low abundance whereas the spadefoot was relatively more abundant in open environs than in the forest. The green toad, the tree frog and the edible frog were only occasionally observed.

Four species (fire-bellied toad *Bombina bombina*, natterjack *Bufo calamita*, tree frog *Hyla arborea* and marsh frog *Rana ridibunda*) have disappeared from the forest since the 1970s. At that time natterjack, tree frog and marsh frog were only occasionally observed while the fired-bellied toad was more abundant. At present the natterjack and the marsh frog have not been recorded at the study area while the tree frog breeds in many places around the forest.

The distribution of the fired-bellied toad appears to be seriously decreasing in and outside the study area. In the 1970s this species was found both inside and outside the Łagiewnicki Forest. Now it has not been found at the 13 sites studied. The possible reason for the decline is that ponds in and around the Łagiewnicki Forest are emptied every few years. The fire-bellied toad is an obligate aquatic/ riparian species and therefore it demands permanent water bodies. It is possible that lack of permanent water bodies is the main reason for the disappearance of this species.

The results of this study indicate a decline in the diversity, distribution and abundance of amphibians of the Łagiewnicki Forest.