

(III)

THREAT TO AMPHIBIAN POPULATION IN DISTRICT MIDNAPORE, WEST BENGAL (INDIA)

Amphibians watched the dinosaurs come and go, but today almost half of them are threatened with extinction. The Global Amphibian Assessment (GAA) is an ongoing project, and since 2004 there have been many updates to the data, including the addition of 160 new species. Almost 600 experts from over 60 countries have so far contributed to this assessment. The results of the study provide a baseline for global amphibian conservation, and are already being used to design the strategies to save the world's rapidly declining amphibian populations. As of June 2007, the GAA lists a total of 5918 amphibian species in the world. Frogs and toads lead the list with 88% or 5211 different species. Of those, 1590 or 30.5% were listed as vulnerable, endangered or critically endangered. Amphibian species diversity is highest in the tropics. Nearly one-third (32%) of the world's amphibian species are threatened, representing 1896 species. By comparison, just 12% bird species and 23% mammal species are threatened. The amphibians of India show a high level of endemism. In 2010, Zoological Survey of India has documented a total of 311 amphibian species in India (Dinesh *et al.*, 2010). Out of these 46 amphibian species are found in all 19 districts of West Bengal. Of these only 14 anuran species are found in West Midnapore district (22°15' N and 87°39' E) of West Bengal (Mansukhani and Sarkar, 1977).

Duttaphrynus melanostictus is the most abundant toad species found in West Bengal, India. Major threat of *Duttaphrynus* species is degradation of breeding habitat due to rapid industrialization, reclamation of wetlands, contamination of water bodies by agricultural pesticides and over-collection for dissection in educational institutes are all taking a heavy toll on the population of these toads. Many are also run-over by traffic on highways. Researchers found that there is not a single overarching cause for global declines; instead all of these factors are threatening the amphibian populations to a greater or lesser extent. Amphibians are extremely sensitive to small changes in temperature and moisture. Changes in global weather patterns (e.g. El Nino events or global warming) can alter breeding behavior, affect reproductive success, decrease immune functions and increase their sensitivity to chemical contaminants. Levels of UV-B radiation in the atmosphere have risen significantly over the past few decades. Researchers have found that UV-B radiation can kill amphibians directly,

cause sub lethal effects such as slowed growth rates and immune dysfunction (Relyea, 2005). *Rhacophoridae maculatus*, *Uperodon globulosus*, *Kaloula taprobanica*, *Sphaerotheca breviceps*, *Fejervarya teraiensis*, *Euphlyctis hexadactyla* and *Fejervarya limnocharis* faced serious problem due to insecticides spray on crops or by getting directly exposed to the spray, and by consuming insects and their larvae which were killed by the insecticide. *Hoplobatrachus tigerinus* was heavily collected for the international frog legs trade. Legal export of this species from the range states of India and Bangladesh has been banned since the middle of 1990. Loss of wetland habitats through infrastructure development, prolonged drought and water pollution by pesticides and other agrochemicals are now the main threats to this species. Specimens currently traded under the name *Hoplobatrachus tigerinus* are likely to be confused with specimens of the Southeast Asian congeneric *Hoplobatrachus rugulosus*. It is considered a pest in Madagascar, where it was originally introduced as a source of human food, and it is still harvested for this purpose. *Fejervarya erythraea* species however has been detected sometimes in the international pet trades, but at levels that do not currently constitute a major threat. Deforestation and habitat destruction combined with pollution by agrochemicals is the main threat to the species, *Polypedates maculatus*. On the other hand *Microhyla ornate* species are not under major threats globally. *Hoplobatrachus crassus* major threats are habitat loss through the general development of infrastructure within the region in and around Midnapur and Kharagpur town. Adult mortality rate during their movement along the roads and over collection of adults for subsistence use might also be a threat in India. *Euphlyctis cyanophlyctis* is very common frog in every type of small or large water bodies. The frog and its tadpoles are common in the diet of herons and other water visiting birds. It is included in the dietary of several common snakes and crocodiles. Ponds and puddles where this species breeds often dry up between early breeding periods (March-May), as a result eggs and tadpoles are killed. Agrochemical pollution of aquatic habitats is the main threat of *Euphlyctis hexadactyla*. *Duttaphrynus stomaticus* are under serious threat from runoff from chemicals used as fertilizers and pesticides against the crop pests is causing death and deformities in

tadpoles of this species. Mortality due to increasing traffic is high. Increasing atmospheric temperatures and decreasing rainfall, have also affected population of this toad enormously. The ponds and puddles, where it breeds during early breeding period (March to May) are

mostly dried out killing eggs and tadpoles. A combination of new diseases or more susceptible amphibians leads to deaths of adults and larvae. There has been a recent increase and widespread occurrence of deformities (or malformations) in natural populations of amphibians.

References

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