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Deep-Sea Fishes of the Mid-Atlantic Ridge: Trophic Structure and Interactions

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803 SSAR SEIBERT CONSERVATION AWARD, Galleria North, Friday 24 July 2009

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A Comparative Study of Herpetofauna in Exotic Plantations and Secondary Forests in Hong Kong and Hainan Province, China

Deforestation has been extensive across southern China. Exotic tree species have been planted in Hong Kong for reforestation and in Hainan Province for timber production, yet we have little understanding as to their effects on herpetofaunal communities. In this study, we compared the herpetofauna between exotic plantations and secondary forests. Paired exotic plantations and secondary forests at four different sites were studied for one year in Hong Kong using pitfall traps, coverboards, and transect surveys. For Hainan, two sites were studied in two consecutive wet seasons by transect surveys only. A total of 13 and 17 amphibian and reptile species were recorded in Hong Kong and Hainan, respectively. In Hong Kong, species diversity and abundance in plantations and secondary forests were similar. Pitfall traps were the most effective method particularly for skinks and toads, which were responsible for 69% of all captures. Coverboards were least effective, contributing only 2% of all captures. In Hainan, there were significant differences in species composition between forest types (82% dissimilarity) but not in species diversity and abundance. Secondary forests were characterized by three forest-dependent species, *Rana spinulosa*, *Leptobrachium hainanense*, and *Acanthosaurus lepidogaster*, while plantations were dominated by generalists including *Microhyla heymonsi* and *Scincella reevesii*. We found that exotic plantations serve as suitable habitats for herpetofauna on degraded hillsides in Hong Kong. In Hainan, plantations do not appear to support forest-dependent species, and this result highlights the need to protect natural forests for the conservation of forest-dependent herpetofauna in some areas.

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386 Fish Ecology II, Pavillion East, Sunday 26 July 2009

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Deep-Sea Fishes of the Mid-Atlantic Ridge: Trophic Structure and Interactions

Because deep-sea fisheries are increasing as coastal fisheries decline, fisheries scientists need baseline data on deep-sea ecosystems prior to further development of deep-water fisheries. We present preliminary results and ongoing efforts to characterize the trophic structure and energy flow of the pelagic ecosystems of the northern Mid-Atlantic Ridge, from Iceland to the Azores. This study is one component of the international CoML field project MAR-ECO (www.mar-eco.no). We found a diverse deep-pelagic fish fauna (205 spp.), with unexpectedly high bathypelagic fish biomass and spatial complexity. Based on literature reports of species present, crustacean planktivory is the dominant trophic guild (79% of individuals 47% of species), primarily within the mesopelagial. "Gelativory" was second (12% ind., 4% spp.), primarily within the bathypelagial. Omnivory (3%, 13%), "shrimpvory" (2%, 4%), and piscivory (1%, 21%) were the remaining major feeding guilds. The diets of 22 spp., primarily bathypelagic, are unknown. Based on stable isotope analysis of fish tissue, two distinct trophic modes were identified: a mode at trophic level 4 (18%; crustacean and gelatinous planktivory) and a mode at trophic level 4.5-5.0 (58%; crustacean planktivory and piscivory). The top piscivores were bathypelagic fishes. In terms of fish biomass, the gelativorous taxa dominated, followed by crustacean zooplanktivores and piscivores. Quantitative comparisons of the different trophic pathways are not possible at present, given our limited knowledge of feeding rates of most species. However, microscopical and molecular analyses are currently ongoing to fill this void, including development of techniques to identify/quantify gelatinous prey as an alternate trophic pathway.

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814 SSAR SEIBERT CONSERVATION AWARD, Galleria North, Friday 24 July 2009

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Amphibian and Reptile Response to Thinning and Burning in Pine-Hardwood Forests of Alabama, U.S.A.

Amphibians and reptiles are essential components of forest ecosystems. Increasing evidence suggests that many of these species are declining due to anthropogenic disturbances, such as habitat destruction and alteration. We examined amphibian and reptile response to forest thinning and prescribed burning in 18 pine-hardwood forest stands of the William B. Bankhead National Forest, Alabama, U.S.A from 2005-2008. Experimental design consisted of a two by three factorial design with three replications. Forest treatments consisted of three thinning levels (no thin, 11 m²/ha residual basal area (BA), and 17 m²/ha residual BA) and two burn levels (no burn and burn). Using drift-fence trap arrays, we captured approximately 3600 individual amphibians and reptiles representing 42 species during one-year of pre-treatment surveys and three years of post-treatment surveys. Most reptile species (e.g. Green Anole, Black Racer, and Black Kingsnake) responded positively to thin and thin/burn treatments and were highly correlated with increased downed woody debris and decreased canopy cover. An amphibian species, the Slimy Salamander was not affected by thinning treatments, but declined in some burn and thin/burn treatments. Findings suggest that forest