

investigation that the forest interior was much cooler and had different vegetation characteristics such as greater canopy cover and larger trees and lesser herbaceous cover, than the edge habitats. *R. rattus*, in contrast to the former, is a ubiquitous generalist species that has managed to colonize six continents and thousands of islands in the wet tropics as well as in arid environments. In addition to *M. mayori*, the fact that the endemics *S. ohiensis* and *F. layardi* and the non-endemic *F. sublineatus* preferentially utilized interior areas, suggest that they may be negatively affected by the creation of habitat edges. On the other hand, those that are tolerant of habitat edges and perhaps benefit by such human modifications are *R. rattus*, *M. booduga* and *F. palmarum*.

Due to edge effects and the differential tolerance of species, the shape of a particular forest patch could be expected to influence the biotic community it supports. Circular forest patches will have proportionately less edge habitat than similar-sized linear forest patches (Bentley et al. 2000). The shape index for forest fragments is calculated as the ratio of perimeter to area (Gkaraveli et al. 2001), which increases as forests become more linear. Based on this premise, the abundance of core forest species should be negatively affected by the shape index, which was observed for *M. mayori*.

Although the fragmentation of Sri Lankan rainforests may not have an overall impact on the species richness of the small mammal community the study clearly demonstrates that it may lead to the decline of certain forest-adapted species. This emphasizes the need to preserve large intact and circular forests whenever possible. The preservation of the smaller forests is also important, since they function as potential “stop over points” that may facilitate the spreading of forest species to nearby patches. Such linkages between forests are particularly important for small mammals that are unable to cover large distances.

REFERENCES

- Andrén, H. (1994).** Effects of habitat fragmentation on birds and mammals in landscapes with differed proportions of suitable habitat: a review. *Oikos* 71: 355–366.
- Bentley, J.M., C.P. Catterall & G.C. Smith (2000).** Effects of fragmentation of Araucarian vine forest on small mammal communities. *Conservation Biology* 14: 1075–1087.
- Boone, J.D. & B.L. Keller (1993).** Temporal and spatial patterns of small mammal density and species composition in a radioactive waste disposal area: The role of edge habitat. *Great Basin Naturalist* 53: 341–349.
- Castelletta, M., J.M. Thiollay & N.S. Sodhi (2005).** The effects of extreme forest fragmentation on the bird community of Singapore Island. *Conservation Biology* 121: 135–155.
- Cincotta, R.P., J. Wisnewski & R. Engleman (2000).** Human population in the biodiversity hotspots *Nature* 440: 990–992.
- Conde, C.F. & C.F.D. Rocha (2006).** Habitat disturbance and small mammal richness and diversity in an Atlantic rainforest area in southeastern Brazil. *Brazilian Journal of Biology* 66: 983–990.
- Cox, M.P., C.R. Dickman & J. Hunter (2004).** Effects of rainforest fragmentation on non-flying mammals of the Eastern Dorrigo Plateau, Australia. *Biological Conservation* 115: 175–189.
- Cutler, A. (1991).** Nested faunas and extinction in fragmented habitats. *Conservation Biology* 5: 496–505.
- Debinski, D.M. & R.D. Holt (2000).** A survey and overview of habitat fragmentation experiments. *Conservation Biology* 14: 342–355
- de Rosayro, R.A. (1950).** Ecological conceptions and vegetation types with special reference to Ceylon. *The Tropical Agriculturist* 56: 108–121.
- Diffendorfer, J.E., M.S. Gaines & R.D. Holt (1995).** Habitat fragmentation and movements of three small mammals (*Sigmodon*, *Microtus* and *Peromyscus*). *Ecology* 76: 827–839.
- Gkaraveli, A., J.H. Williams & G.E.G. Good (2001).** Fragmented native woodlands in Snowdonia. UK: Assessment and amelioration. *Forestry* 74: 89–193.
- Goodman, S.M. & D. Rakotondravony (2000).** The effect of forest fragmentation and isolation on insectivorous small mammals (Lipotyphla) on the Central High Plateau of Madagascar. *Journal of Zoology* 250: 193–200.
- Hansen, A.J., P.G. Risser & F. DiCasteri (1992).** Epilogue: Biodiversity and ecological flows across ecotones, pp. 423–438. In: Hansen, A.J. & F. DiCasteri (eds.). *Landscape boundaries. Consequences for Biotic Diversity and Ecological Flora*. Springer-Verlag, New York.
- Harraington, G.N., A.N.D. Freeman & F.H.G. Crome (2001).** The effects of fragmentation of an Australian tropical rainforest on populations and assemblages of small mammals. *Journal of Tropical Ecology* 17: 225–240.
- Kozakiewicz, M. & E. Jurasinska (1989).** The role of habitat barriers in woodlot recolonization by small mammals. *Ecography* 12: 106–111.
- Laurance, W.F. (1991).** Edge effects on tropical forest fragments. Application of a model for the design of nature reserves. *Biological Conservation* 57: 205–219.
- Laurance, W.F., P. Delamônica, S.G. Laurance, H.L. Vasconcelos & T.E. Lovejoy (2000).** Rainforest fragmentation kills big trees. *Nature* 404: 836.
- Lindenmayer, D.B., M.A. McCarthy, K.M. Parris & M.**

- Pope (2000).** Habitat fragmentation, landscape context and mammalian assemblages in south-eastern Australia. *Journal of Mammalogy* 82: 787–797.
- MacArthur, R.H. & E.O. Wilson (1967).** *The Theory of Island Biogeography*. Princeton University Press, Princeton, 203pp.
- Malcolm, J.R. (1994).** Edge effects in central amazonian forest fragments. *Ecology* 75: 2438–2445.
- Middleton, J. & G. Merriam (1983).** Distribution of woodland species in farmland woods. *Journal of Applied Ecology* 20: 625–644.
- Molur, S. & M. Singh (2009).** Non-volant small mammals of the Western Ghats of Coorg District, southern India. *Journal of Threatened Taxa* 1(12): 589–608.
- Myers, N. (1990).** The biodiversity challenge: Expanded hotspot analysis. *The Environmentalist* 10: 243–256.
- Myers, N., R.A. Mittermeir, C.G. Mittermeir, G.A.B. da Fonseca & J. Kent (2000).** Biodiversity hotspots for conservation priorities. *Nature* 403: 853–858.
- Pattananavibool, A. & P. Dearden (2002).** Fragmentation and wildlife in montane evergreen forests, northern Thailand. *Biological Conservation* 107: 155–164.
- Patterson, B.D. & J.H. Brown (1991).** Regionally nested patterns of species composition in granivorous rodent assemblages. *Journal of Biogeography* 18: 395–402.
- Ratnaweera, P.B. & M.R. Wijesinghe (2009).** Effect of food quality and availability on rainforest rodents of Sri Lanka. *Journal of Threatened Taxa* 1(12): 581–588.
- Renata, P. (2004).** Effects of forest fragmentation on small mammals in an Atlantic forest landscape. *Biodiversity Conservation* 13: 2567–2586.
- Rosenblatt, D.L., E.J. Heske, S.L. Nelson, D.M. Barber, M.A. Miller & B. MacAllister (1999).** Forest fragments in east-central Illinois: islands of habitat fragments for mammals? *American Midland Naturalist* 141: 115–123.
- Schoener, T.W. (1974).** Competition in the form of habitat shift. *Theoretical Population Biology* 6: 265–307.
- Vieira, E.M. & E.L.A. Monteiro-Filho (2003).** Vertical stratification of small mammals in the Atlantic rainforest of south-eastern Brazil. *Journal of Tropical Ecology* 19: 501–507.
- Walters, B.B. (1991).** Small mammals in subalpine old-growth forest and clearcuts. *Northwest Science* 65: 27–31.
- Wethered, R. & M. Lawes (2003).** Matrix effects on bird assemblages in fragmented Afromontane forests in South Africa. *Biological Conservation* 114: 327–340.
- Wijesinghe, M.R. (2010).** Efficiency of live trapping protocols to assess small mammal diversity in tropical rainforests of Sri Lanka. *Belgian Journal of Zoology* 140: 212–215.
- Wijesinghe, M.R. & M. de Brooke (2005).** The distribution of small mammals along a disturbance gradient in Sinharaja, Sri Lanka. *Journal of Tropical Ecology* 21: 291–296.
- Yahner, R.H. (1988).** Changes in wildlife communities near edges. *Conservation Biology* 2: 333–339.
- Yáñez, M.A., V. Frida, J.A. Simonetti & A.A. Grez (1999).** Small mammals of forest islands of the Beni Biological Station, Bolivia. *Mastozoología Neotropical* 6: 135–138.

