

Phylogeography of the West Indian manatee (*Trichechus manatus*): how many populations and how many taxa?

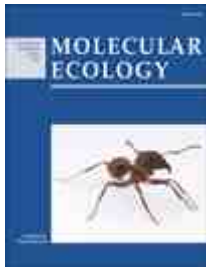
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Article first published online: 28 FEB 2002

DOI: 10.1046/j.1365-294x.1998.00430.x

1998 Blackwell Science Ltd

Issue



Molecular Ecology

[Volume 7, Issue 9](#), pages 1137–1149, September 1998

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How to Cite

GARCIA-RODRIGUEZ, A. I., BOWEN, B. W., DOMNING, D., MIGNUCCI-GIANNONI, A. A., MARMONTEL, M., MONTOYA-OSPINA, R. A., MORALES-VELA, B., RUDIN, M., BONDE, R. K. and McGUIRE, P. M. (1998), Phylogeography of the West Indian manatee (*Trichechus manatus*): how many populations and how many taxa?. *Molecular Ecology*, 7: 1137–1149. doi: 10.1046/j.1365-294x.1998.00430.x

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Publication History

1. Issue published online: 28 FEB 2002
2. Article first published online: 28 FEB 2002

Keywords:

- conservation genetics;
- marine mammal;
- mitochondrial DNA;
- molecular systematics;
- zoogeography

To resolve the population genetic structure and phylogeography of the West Indian manatee (*Trichechus manatus*), mitochondrial (mt) DNA control region sequences were compared among eight locations across the western Atlantic region. Fifteen haplotypes were identified among 86 individuals from Florida, Puerto Rico, the Dominican Republic, Mexico, Colombia, Venezuela, Guyana and Brazil. Despite the manatee's ability to move thousands of kilometres along continental margins, strong population separations between most locations were demonstrated with significant haplotype frequency shifts. These findings are consistent with tagging studies which indicate that stretches of open water and unsuitable coastal habitats constitute substantial barriers to gene flow and colonization. Low levels of genetic diversity within Florida and Brazilian samples might be explained by recent colonization into high latitudes or bottleneck effects. Three distinctive mtDNA lineages were observed in an intraspecific phylogeny of *T. manatus*, corresponding approximately to: (i) Florida and the West Indies; (ii) the Gulf of Mexico to the Caribbean rivers of South America; and (iii) the northeast

Atlantic coast of South America. These lineages, which are not concordant with previous subspecies designations, are separated by sequence divergence estimates of $d = 0.04\text{--}0.07$, approximately the same level of divergence observed between *T. manatus* and the Amazonian manatee (*T. inunguis*, $n = 16$). Three individuals from Guyana, identified as *T. manatus*, had mtDNA haplotypes which are affiliated with the endemic Amazon form *T. inunguis*. The three primary *T. manatus* lineages and the *T. inunguis* lineage may represent relatively deep phylogeographic partitions which have been bridged recently due to changes in habitat availability (after the Wisconsin glacial period, 10 000 BP), natural colonization, and human-mediated translocation.