

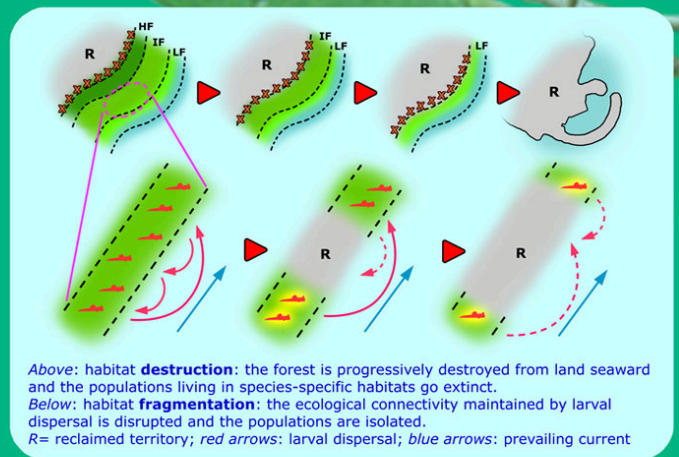
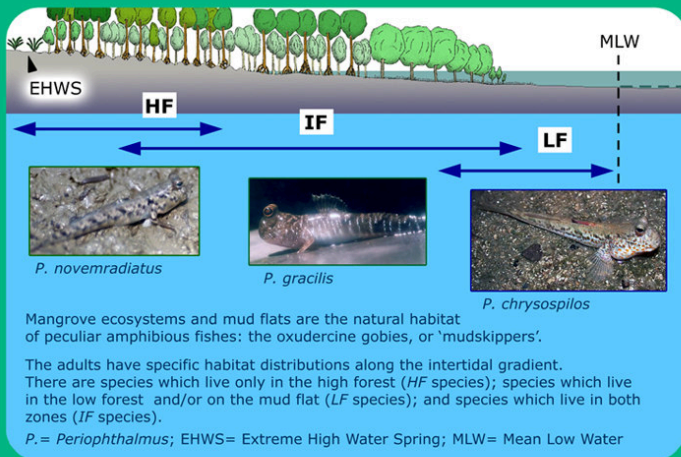
Impact of mangrove deforestation on the diversity of Malaysian oxudercine gobies (Gobiidae: Oxudercinae)

Preliminary observations and future research

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Malaysian mudskippers and the impact of deforestation



Preliminary observations



Fig. 3. Study sites: coastal areas of western peninsular Malaysia (red dots: 4 study sites, 26 plots). S.= Sungai= river; P.= Pulau= island

Tab. 1. Presence-absence matrix of the species. Xs indicate presence. Pn.= *Periophthalmodon*; B.= *Boleophthalmus*

Species	habitat	Tanjung Tuan	Morib	S. Sementa Besar	Kuala Selangor
<i>P. novemradiatus</i>	HF	X		X	X
<i>P. walailakae</i>	HF		X	X	X
<i>P. gracilis</i>	IF	X	X	X	X
<i>P. spilotus</i>	IF		X	X	X
<i>Pn. schlosseri</i>	IF		X	X	X
<i>P. argenteolineatus</i>	LF	X			
<i>P. chrysospilos</i>	LF		X	X	X
<i>B. boddarti</i>	LF		X	X	X
<i>B. dussumieri</i>	LF				X
Totals:		3	5	7	8

Tab. 2. Number of species found in the 4 localities. Dst SE-NW= linear distance from each locality to the southernmost locality (Tanjung Tuan) in the SE-NW direction; grad= approximate extension (m) of the intertidal gradients at spring low tide; n= total number of species; nHF= number of LF species; nHF= number of HF species; nIF= number of IF species

Locality	Dst SE-NW	grad	n	nHF	nIF	nLF
Tanjung Tuan	0	30	3	1	1	1
Morib	60	70	5	1	2	2
S. Sementa Besar	92	140	7	2	3	2
Kuala Selangor	125	300	8	2	3	3

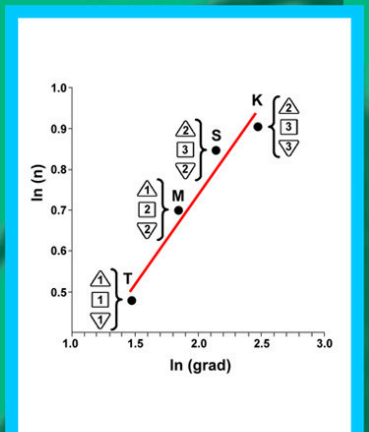


Fig. 4. Total number of species (n) plotted against the extension of the intertidal gradient ($grad$) (logarithmic plot: slope= 0.43; $p(\text{uncorr}) < 0.05$). Point distribution fits a geometric model (Rosenzweig, 1995). T= Tanjung Tuan; M= Morib; S= Sementa; K= Kuala Selangor. Triangles pointing upward= nHF; squares = nIF; triangles pointing downward= nLF

- Anthropogenic deforestation proceeds from land to sea, impacting the high forest more intensively
- The number of species living in each habitat (nHF, nIF, nLF) decreases in gradients of decreasing extension
- The high forest always hosts a smaller number of species (nHF) than other habitats do

Future research

Is habitat destruction and fragmentation driving to extinction and/or disrupting the gene flow between populations of mudskippers living in the high mangrove forest?

Mudskipper species living in the high forest zone (*P. novemradiatus*, *P. walailakae*) are proposed as a case study of the effects of habitat destruction and fragmentation on mangrove resident species

Keywords: bottle necks, genetic erosion, extinction risk assessment, fragmentation, genetic isolation, inbreeding, conservation genetics, minimum viable population size, minimum dynamic area of the habitat