Introduction to PBSresilate

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1 What is `PBSresilate`?

`PBSresilate` uses an interactive GUI to control solvers, calculate states, and display results in 2D or 3D plots for published 3-state models (specifically their derivative formulae). The current name reflects resilience theory and emphasizes a close association with other PBS packages, particularly `PBSmodelling`.

2 What is PBS?

The initials **PBS** refer to the Pacific Biological Station, a major fisheries laboratory operated by Fisheries and Oceans Canada on the Pacific coast in Nanaimo, British Columbia, Canada.

3 Where is the User's Guide?

The R library directory `.../PBSresilate/doc` includes a very basic guide to the package functions.

4 What demos are available?

`PBSresilate` includes five examples that can be chosen from a menu GUI invoked by the function `runResilate`. Note that the examples are run in the temporary working environment `.PBSresEnv`. The examples are:

- `ludwig` – Spruce Budworm ("Buzzworm") Model
- `edwards` – Zooplankton Mortality, Dynamical Behaviour of Plankton Populations
- `hastings` – Chaos in a Three-Species Food Chain
- `lorenz` – Lorenz Model
- `resilenz` – Resilenz Model

References

Edwards, A.M. and Brindley, J. (1999) Zooplankton mortality and the dynamical behaviour of plankton population models. *Bulletin of Mathematical Biology* **61**, 303–339.

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Lorenz, E.N. (1963) Deterministic non-periodic flows. *Journal of Atmospheric Science* **20**, 130–141.

Ludwig, D., Jones, D.D. and Holling, C.S. (1978) Qualitative analysis of insect outbreak systems: the spruce budworm and forest. *The Journal of Animal Ecology* **47(1)**, 315–332.