Parental care in amphibians

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21 February 2017

Stereotypical amphibian reproduction

Forms of parental care

- Nest guarding
- Food provision
- Transport
- Lactation
- Education
Forms of parental care

- Nest guarding
- Food provision
- Transport
- Lactation
- Education

Why bother?

...why not bother?

Why bother?

- Protection against predators
  - Conspecific and heterospecific
- Protection against desiccation
- Protection against microbial pathogens
  - Antimicrobial secretions
  - Selective eating of infected eggs
- Aeration of eggs

...why not bother?

- Reproductive costs
- Survival costs
Ma or Pa?
Anuran Parental Care

① Attendance of eggs and young. ③ Transport of young.
② Transport of eggs. ④ Feeding of young.

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① Attendance of eggs and young.

• Most common form of parental care
• 13-15 anuran families
• Mostly terrestrial
② Transport of eggs

• Independent evolution in four families of frogs.
  – Very different strategies
    • Morphological adaptations to match
  – Male vs. female transport

Surinam toad (*Pipa pipa*)
video on ARKive

Hemiphractidae

*Hemiphractus*

*Gastrotheca*
Transport of eggs

*Rheobatrachus* [Myobatrachidae]

*EXTINCT*

Transport of eggs

*Alytes obstetricans* [Alytidae]
③ Transport of larvae or young

Leptodactylus [Leptodactylidae]

Pyxicephalus [Pyxicephalidae]

BBC’s Life in Cold Blood

Rhinoderma [Rhinodermatidae]

Dante Fenolio
Melissa Linsted
Transport of larvae or young

Transport in Dendrobatidae

Epipedobates

Ranitomeya

Transport of larvae or young

Transport in Dendrobatidae

Cophaga

Feeding of young

Repeated evolution of egg-feeding:

- Dendrobatidae [+++]
- Two genera in Hylidae [2]
- Rhacophoridae [1]
- Leptodactylidae [1]
**Salamander Parental Care**

1. Attendance of eggs or young

**Anotheca [Hylidae]**

*Transport of larvae or young*  *Feeding of young*

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Attendance of eggs or young

- Most common form of parental care.
- Found in most (if not all) families of salamanders.

Amphiuma
[Amphiumidae]

Hemidactylium
[Plethodontidae]

Attendance of eggs or young

BBC's Life in Cold Blood

What's this one?
Desmognathus fuscus
(Plethodontidae)

Ma or Pa?

Attendance of eggs or young

Attendance of eggs or young
Ma or Pa?

- Often larger
- Internal fertilization
- Egg-feeding

- External fertilization
- Present when eggs are laid

Attendance of eggs or young

Two-lined salamanders
(Eurycea bislineata complex)

Male dimorphism

"cirriferous male"  "big-headed male"
Caecilian Parental Care

① Attendance of eggs or young.

④ Feeding of young.

Ichthyophis [Ichthyophidae]

① Attendance of eggs or young.
1. Attendance of eggs or young

Gymnopia
[Dermophidae]

2. Feeding of young

BBC's In the Wild: Blood

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