



A BIBLIOGRAPHY OF ANURAN
DEFENSIVE MECHANISMS

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INTRODUCTION

Although many aspects of the biology of frogs and toads are reasonably well known, antipredator mechanisms have been largely overlooked or superficially treated. To date, there has not been a review of anuran defensive mechanisms.

The purpose of this bibliography is twofold. One objective is to present a comprehensive list of published works dealing in any way with frog defensive mechanisms. To accomplish this, I have tried to review all references of frog antipredator mechanisms to verify that the reference is correct, to catalogue the different behaviors and mechanisms, and to list the species involved. Papers dealing with biochemistry and pharmacology of secretions have been excluded except where they pertain directly to antipredator or defensive mechanisms. I suggest those interested in biochemistry and pharmacology consult Low (1972) and Daly and Witkop (1971) for references on these subjects. At the end of the bibliography, there is a subject by reference listing.

The second objective of this bibliography is to stimulate research in the area of anuran antipredator mechanisms. Much remains to be learned about anuran behavior and a bibliography hopefully will provide stimulation as well as a reference source. I would appreciate receiving any additional information which may have been excluded.

Finally, I would like to thank the following people who provided needed information: George Zug, Ron Heyer, Bruce Bury, Steve Busack, Ron Crombie, and Ron Altig. Bart Kavruck provided the cover illustration of a Kaloula pulchra in its defensive posture.

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Reference by subject cross listing. * indicates that the reference was not reviewed.

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| 1. aposematic coloration | 12. bony armor |
| 2. flash colors | 13. biting |
| 3. eye camouflage | 14. sound as defense |
| 4. protective coloration (crypsis) | 15. release of bladder water |
| 5. mimicry, procrypsis | 16. spines, spades, or claws |
| 6. immobility | 17. records a predator's reactions |
| 7. puffing the body up | 18. venom ejection |
| 8. defensive posture | 19. histology of glands |
| 9. movement as defense | 20. tadpole defensive behav. |
| 10. noxious secretions | 21. noxious eggs |
| 11. disagreeable odors | 22. phragmosis |

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| Anderson (1954): 9,10,14. | Bokermann & Sazima (1973):8. |
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| Annandale (1912): 4. | Bragg (1945):7,8,9, 6. |
| Banta & Carl (1967): 6. | Bragg (1965):10, 11. |
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