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## PESTICIDE REGISTRATION IN THE UNITED STATES

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**Abstract:** This review provides an abbreviated history of pesticide regulation in the United States, with a summary of the current registration process and exceptions under the authority of the Environmental Protection Agency and the Federal Environmental Pesticide Control Act of 1972, as amended. Issues related to registration are briefly described.

### Summary of Pesticide Regulation in the United States

**Regulation of pesticides** and their use in the United States began with passage of the Federal Insecticide Act in 1910 which authorized the U.S. Department of Agriculture (USDA) as the regulatory agency although relatively limited control of insecticide use was actually exercised by the USDA under this authority. With passage of the Federal Food, Drug and Cosmetic Act in 1938, the Food and Drug Administration (FDA) became involved and some additional constraints were imposed. The perceived need for more stringent regulation of pesticide use led to passage of the Federal Insecticide, Fungicide and Rodeaticide Act of 1947 (FIFRA-1947) which provided a significantly greater degree of control. However, registration of pesticides under this Act and the authority of the USDA did not require extensive and detailed data on pesticide toxicology, safety, effectiveness, exposure of nontarget species and potential hazards as a consequence of pesticide use. Various amendments to FIFRA-1947 followed, with the USDA continuing as the regulatory agency until December 1970 when the U.S. Environmental Protection Agency (EPA) was created by President Nixon's Administrative Reorganization Plan. Creation of the EPA was quite likely heavily influenced by the President's Council an Environmental Quality (CEQ) which had been created in January 1970 under the National Environmental Policy Act to advise the President on all matters relating to the environment and natural resources.

Upon creation of the EPA in 1970, all USDA authority under FIFRA and the FDA responsibilities regarding pesticide residues on raw agricultural products were transferred to this new agency. However, it was not until passage of the Federal Environmental Pesticide Control Act in October 1972 (FEPCA-1972) that major increases in pesticide regulation began. FEPCA-1972, now more commonly referred to as FIFRA-1972, has been amended several times since 1972 and has caused dramatic change in pesticide regulation. Major differences between FIFRA-1947 (as amended) and FIFRA-1972 (as amended) include, among others, the following:

1. All pesticide used in the U.S. must be registered and approved for use by the EPA.
2. Pesticides believed to cause adverse effects or hazards in the environment may be cancelled and suspended by the EPA administrator.
3. Pesticide applicator certification programs are required.
4. Restricted use pesticides may be applied only by or under the supervision of certified applicators.
5. Misuse of pesticides may be punished by civil and criminal penalties.
6. Enforcement of pesticide regulations is substantially increased.
7. Experimental Use Permits are required for evaluation of potential pesticides in field use conditions.
8. Emergency and special local needs uses of pesticides are closely regulated.

In addition to FIFRA-1972 (as amended), more recent laws affecting pesticide regulations include the National Environmental Policy Act, the Endangered Species Act, the Toxic Substance Control Act, the Solid Wastes Disposal Act, the Clean Air Act, the Clean Water Act and others. The consequence of FIFRA-1972 and the numerous other laws which apply is that pesticides are far more rigidly regulated than ever before in U.S. history. Some feel that current regulations are much too stringent while others believe they are too lenient. Whatever the case, there is now a complex set of procedures and data requirements which must be met under FIFRA-1972 before a pesticide can be registered for use in the U.S.

### **Current Procedures for FIFRA-Section 3 Registration of Pesticides**

Persons not familiar with current pesticide registration procedures in the U.S. often raise questions and may be highly critical of and frustrated by interminable delays of a registration in which they have interest. Those involved in efforts to secure such registrations may be equally critical of seemingly endless data requirements imposed by the EPA and some state agencies. Relatively few people are fully aware of data requirements that are now mandatory and that, under the authority of the EPA and FIFRA-1972, as amended, pesticide registration has become an extremely complex and costly process. This is particularly true of any pesticide used for control of vertebrate animals, for which the research studies to develop essential data may easily cost millions of dollars and require several years to complete. Table 1 lists the information and data categories which are included in the current review process for a full Section 3 registration by the EPA.

In addition, more detailed and extensive information may be required if a potential hazard is believed to exist to one or more endangered or threatened species from pesticide use. Figure 1 illustrates the steps followed by the EPA where such a hazard is presumed to exist. Figure 2 illustrates the major steps followed by the U.S. Fish and Wildlife Service (USFWS) and its Office of Endangered Species (OES) in completing a Section 7 consultation required by the Endangered Species Act of 1973. The Section 7 consultation and resulting biological opinion issued by the USFWS are required and utilized by the EPA in its deliberations.

A pesticide registration application that survives the procedures described may be then granted registration by the EPA, subject to use restrictions which are imposed for protection of humans, nontarget animals and the environment from adverse effects.

Following registration by the EPA under Section 3 of FIFRA-1972, the registration must be submitted for review to the pesticide regulatory agency in the state where its use is intended. Additional data requirements and/or use restrictions may be imposed by the state agency prior to granting a state registration and label for pesticide use.

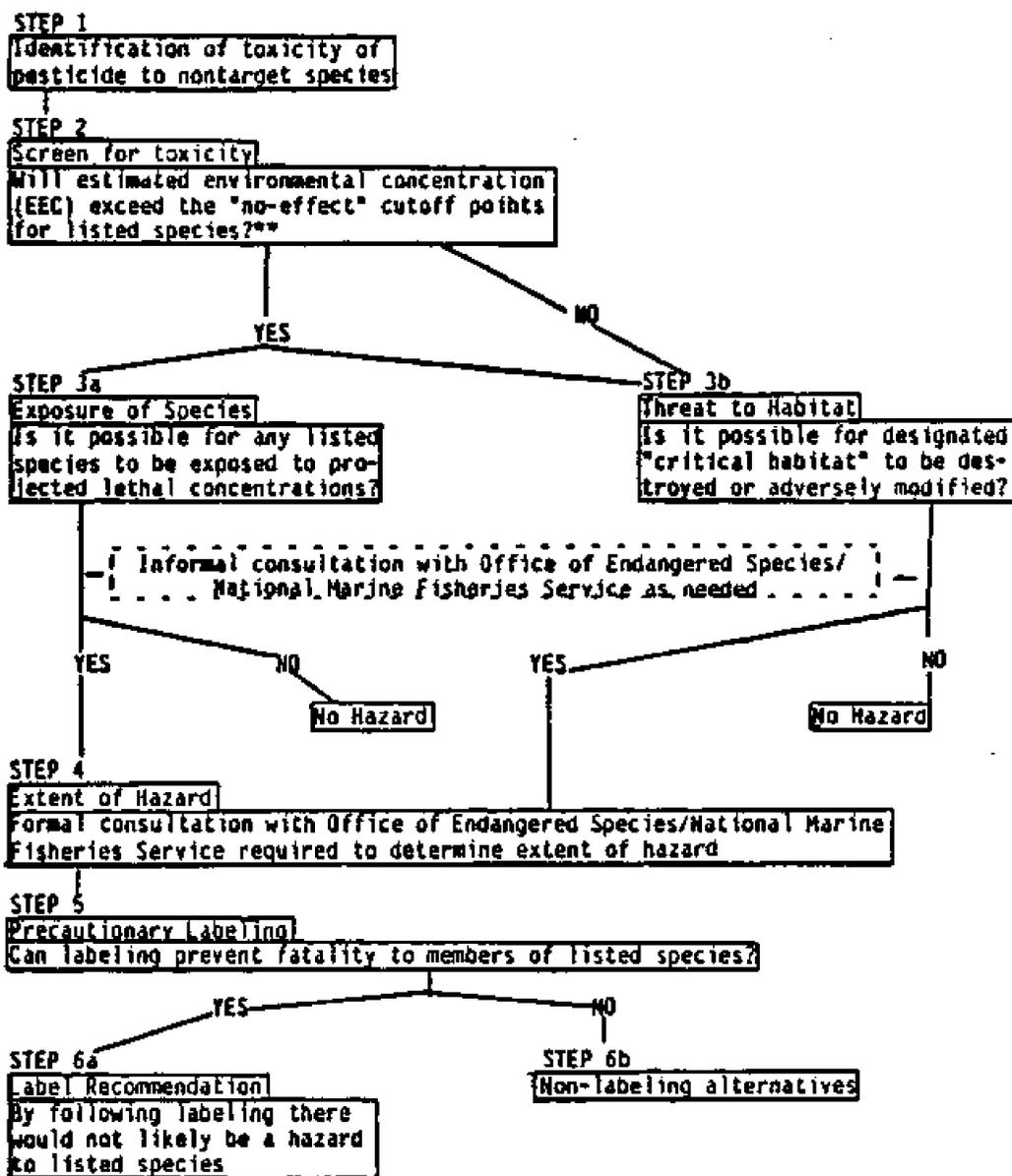
### **Current Exceptions to Section 3 Registrations**

Exceptions to a full Section 3 registration, which may be granted by the EPA under FIFRA-1972, include a conditional Section 3 registration which permits pesticide use while certain essential data are developed. Other exceptions are experimental use to develop required data under Section 5, emergency use to protect humans and animals under Section 18, and use for "special local needs" within a state under Section 24. However, the relative leniency exhibited by the EPA during the first decade following passage of PIPRA-1972 to permit use of pesticides under these exceptions has declined; in general, applicants are now being required to supply data for full Section 3 registrations for pesticides which they desire to use. Section 5 experimental use permits may be granted by the EPA to develop

**Table 1. EPA Standard Review Format for Section 3 Registration Submissions.**

<b>Pesticide Name</b>		103.3.6	Toxicity to Wild Mammals
100	Pesticide Label Information	103.3.7	Other
100.1	Pesticide Use	103.4	Additional Aquatic Laboratory Tests
100.2	Formulation Information	103.4.1	Toxicity to Estuarine and Marine Animals
100.3	Application Methods, Directions,	103.4.2	Embryo-Larvae and Life Cycle Studies
100.4	Target Organism(s)	103.4.3	Oyster Shell Deposition Studies
100.5	Precautionary Labeling	103.4.4	Toxicity and Residue Studies
101	Physical and Chemical Properties	103.4.5	Aquatic Phytotoxicity
101.1	Chemical Name	103.4.6	Other
101.2	Structural Formula	103.5	Field Tests
101.3	Common Name	103.5.1	Aerial Drift Studies
101.4	Trade Name	103.5.2	Simulated Large and Small Pen Field Tests
101.5	Molecular Weight	103.5.3	Aquatic Field Tests
101.6	Physical State (Color, Odor, Taste, etc.)	103.5.4	Terrestrial Field Tests
101.7	Solubility (include temperature) Water Organic Solvents	103.5.5	Secondary Toxicity
102	Behavior in the Environment	103.5.6	Other
102.1	Soil	104	Hazard Assessment
102.2	Water	104.1	Discussion
102.3	Plant	104.2	Likelihood of Adverse Effects to Non-target Organisms
102.4	Animal	104.3	Endangered Species Considerations
102.5	Microorganisms	104.4	Adequacy of Toxicity Data
103	Toxicological Properties	104.5	Additional Data Required
103.1	References from Toxicology Branch	105	Classification
103.2	Minimum Requirements	106	RPAR Criteria
103.2.2	Avian Dietary LC 's 50	107	Conclusions
103.2.3	Fish Acute LC 's 50	107.1	Environmental Fate and Toxicology Acknowledgement
103.2.4	Aquatic Invertebrate LC 50	107.2	Classification Labeling
103.3	Additional Terrestrial Laboratory Tests	107.3	Environmental Hazards Labeling
103.3.1	Avian Reproduction Studies	107.4	Data Adequacy Conclusions
103.3.2	Terrestrial Phytotoxicity	107.5	Data Requests
103.3.3	Toxicity to Beneficial Insects	107.6	Special Notes
103.3.4	Cholinesterase-inhibition	107.7	Recommendations
103.3.6	Toxicity to Reptiles and Amphibians	Appendix:	Classification Calculations, RPAR Calculations, Validation Sheets, Endangered Species Formal Consultation Package, Data References, etc.

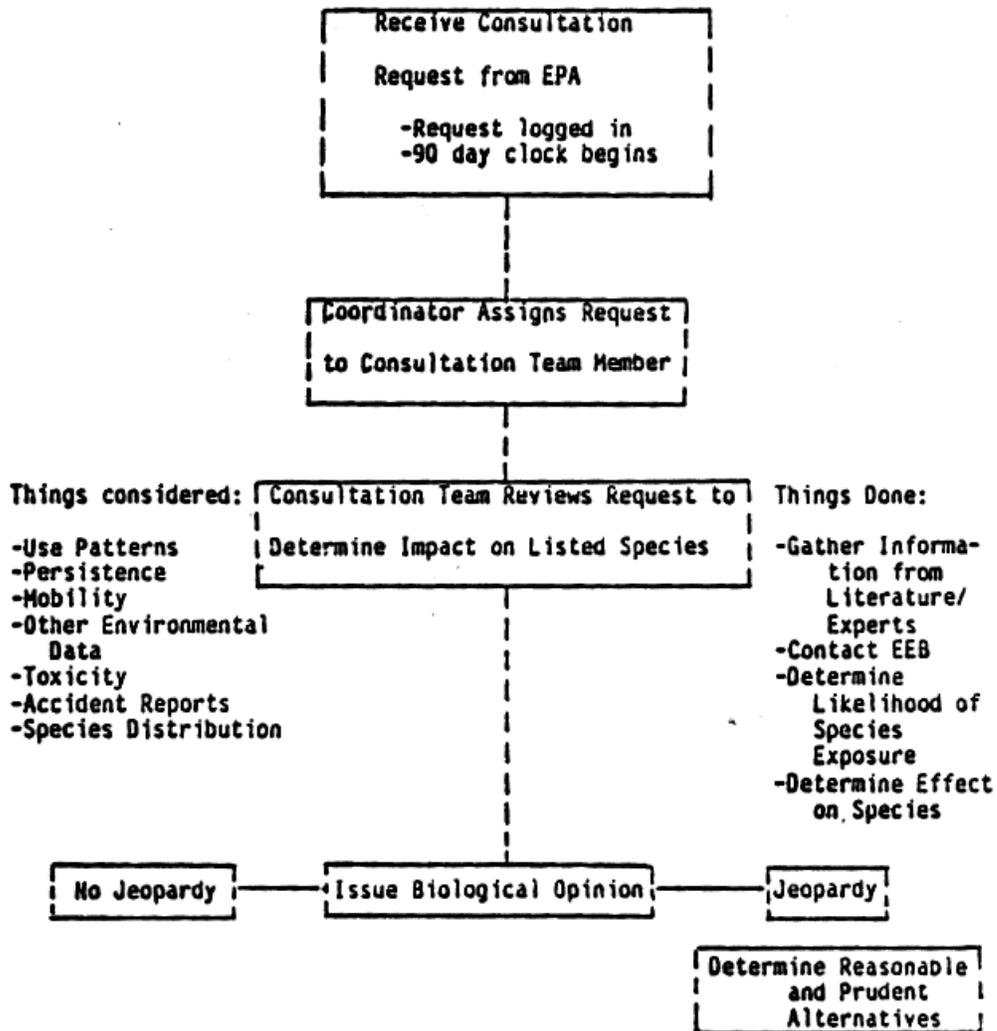
Figure 1. Evaluating risk to endangered/threatend\* species from pesticide registration actions by the EPA.



\*also referred to as listed species

\*\*1/5th the lowest mammalian acute oral LD<sub>10</sub> or LC<sub>10</sub>; 1/5th the lowest avian subacute dietary LC<sub>10</sub>; 1/10 the lowest aquatic acute LC<sub>10</sub>. Where LC<sub>10</sub>, or LD<sub>10</sub> are not available, 1/10th the mammalian LD<sub>50</sub> or LC<sub>50</sub>, 1/10 the avian

**Figure 2. U.S. Fish and Wildlife Service Flow Chart - Section 7 Consultation - Pesticides.**



essential data. Currently, EPA administrators appear to have taken the position that requests for pesticide uses for conditional, emergency and special local needs have been excessive and that data for Section 3 registrations should be provided in most cases.

### **Issues Related to Pesticide Registration**

**Aside** from specific data requirements there are other causes fundamental to the time, effort and costs required to secure a registration. These may include opposition for personal or other reasons by specific interest groups. Some of the reasons described by individuals or interest groups are listed below:

1. Animals were here first, have the same rights as people and should have equal protection.
2. Animals should not be killed but should be allowed to die naturally.
3. Animals should be guaranteed a humane and painless death.
4. Animal control to prevent damage is both wrong and unnecessary.
5. Animal control disrupts the "Balance of Nature."
6. Chemicals are synthetics produced by man and are "bad" for the environment.
7. Chemicals "upset the ecology."
8. Chemical control of animals is wrong.
9. Chemicals cause disease in animals and/or people (eg. cancer).
10. "Chemicals" are not necessary.
11. People should not eat meat; therefore, chemicals should not be used to protect domestic animals.
12. "Natural organic" foods are safer and better for people than those produced by use of fertilizers and pesticides.

In addition to those persons or groups directly opposed to animal control (with or without chemical methods), individuals and/or groups within the agricultural and pesticide industries may oppose certain registrations. In some instances, this may reflect an intent to reduce market competition for agricultural or other products. In other cases, companies may oppose registration of pesticide formulations which would be competitive to their products. As a consequence, interesting alliances to oppose specific registrations sometimes occur.

Opposition to pesticides frequently leads to political and/or administrative efforts to prevent a registration, to increase use restrictions, to prevent or limit marketing, to prevent or limit uses at state or local levels, to increase the costs of a pesticide, to prevent marketing of products which have pesticides used in their production, and to generate public opposition to the pesticides, their uses and the products therefrom. As a consequence, registrations have become far more difficult to accomplish; therefore, for many pesticides used in small quantities the costs are prohibitive to the manufacturer and/or formulator. The registered pesticides commonly used now and in the past for control of wild vertebrate animals provide examples of "minor use" pesticides which are used in relatively small quantities and of *the complex* and expensive registration process. In addition, the "Guidelines for Pesticide Registration" (EPA 1985) are both voluminous and instructive in this regard.

Some people may be interested in the rationales for and positions taken in support of or in opposition to various pesticides. For those with interest, a review of the voluminous EPA hearing records and literature related to use of Compound 1080, strychnine and sodium cyanide for control of vertebrate animals in the U.S. will provide graphic examples. Additional references listed below provide a variety of perspectives on these issues.

### Selected References

- Cain, S. A., S. A. Kadlec, D. L. Allen, R. A. Cooley, M. H. Hornocker, and F. H. Wagner. 1971. Predator Control-1971, Report to the President's Council on Environmental Quality and the U.S. Department of the Interior by the Advisory Committee on Predator Control, University of Michigan Press, Ann Arbor, 207 pp.
- Carson, R. L. 1962. *Silent Spring*. Houghton Mifflin Co., Boston, 368 pp.
- Dietz, D. H. 1984. Keynote Address-politics of pesticides. Pages 2-4 *in*: Proceedings, Eleventh Vertebrate Pest Conference, D. O. Clark (Ed.), University of California, Davis.
- Hood, G. A. 1978. Vertebrate control chemicals: current status of registrations, rebuttable presumptions against registrations, and effects on users. Pages 170-175 *in*: Proceedings, Eighth Vertebrate Pest Conference, W. E. Howard and R. E. Marsh (Eds.) University of California, Davis.
- Howard, W. E. 1979. Political and sociological aspects of wildlife damage control. Pages 147-165 *in*: Proceedings, Fourth Great Plains Wildlife Damage Control Workshop, F. R. Henderson (Ed.), Kansas State University, Manhattan.
- Howard, W. E. and R. H. Schmidt. 1984. Biological rationale for 1080 as a predatoricide. Pages 139-145 *in*: Proceedings, Eleventh Vertebrate Pest Conference, D. O. Clark (Ed.). University of California, Davis.
- Leopold, A. S., S. A. Cain, C. M. Cottam, I. N. Gabrielson and T. L. Kimball 1964. Predator and rodent control in the United States. *Traps. N. Am. Wildl. Conf.* 29:27-49.
- MacInyre, A. A. 1982. The politics of nonincremental domestic change: major reform in federal pesticide and predator control policy. Ph.D. dissertation, University of California, Davis, 876 pp.
- U.S. Environmental Protection Agency. 1985. Guidelines For Pesticide Registration, U.S.E.P.A., Washington, D. C.
- U.S. Fish and Wildlife Service. 1979. Department of the Interior, Final Environmental Impact Statement, Mammalian Predator Damage Management for Livestock Protection in the Western United States, U.S. Dept of Interior, Washington, D.C., 789 pp.
- Wade, D. A. 1975. Political factors in animal damage control Proceedings: Advancements in Pesticides, Helena, Montana, reprinted in California Livestock News, Vol. XLX (11):12-19, November 1975.
- Wade, D. A. and S. L. Beasom. 1979. The effects of environmental-political factors on predator research. Pages 294-303 *in*: Vertebrate Pest Control and Management Materials, ASTM STP 680, J. R. Beck (Ed.), American Society for Testing and Materials.
- Western Regional Coordinating Committee (WRCC-26). 1980. A Response to Secretary of Interior Andrus' Policy Statement Pertaining to the Animal Damage Control Program. Utah State University, Logan, February 15, 1980, 91 pp.