



Conserve O Gram

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Chronology Of Pesticides Used On National Park Service Collections

The history of National Park Service pesticide use policy for museum collection objects is documented in various publications including *Field Manual for Museums* (Burns), *Manual for Museums* (Lewis), versions of the *Museum Handbook*, Part I, and two versions of the *Integrated Pest Management Information Manual*. Other non-policy sources include Coleman's *Manual for Small Museums*, object treatment reports and notes from NPS staff, and notes from the Office of the Integrated Pest Management (IPM) Coordinator.

The two accompanying charts list the types of pesticides that may have been used on National Park Service collections along with some common synonyms and trade names.

Dates shown in blue on the chart represent published recommendations for the use of pesticides. Those shown in red refer to conservation treatment reports and other file notations that confirm the use of pesticides on specific objects or collections.

While there is a strong probability that chemicals recommended in NPS policy documents were used with some frequency, few records exist for confirmation. It is also possible that some of the chemicals were in use before the listed publication dates and that their use might have continued even after new pesticides were being recommended. The use of DDT in the 1970s is an example of the latter; DDT was banned in 1972.

With the exception of Swan Song (chemical unidentified), the pesticides listed on the chart prior to 1941 are from Lewis or Coleman (Coleman's book, published in 1927, was the main reference for NPS collections until Burns's 1941

publication). Synonyms and trade names were obtained from the Merck Index, notes from the IPM Coordinator, and two Internet sites (<<http://chemfinder.com>> and <<http://www.cdpr.ca.gov/cgi-bin/epa>>).

Not all of the chemicals listed in the accompanying charts were marketed as pesticides. Some are fungicides and microbiocides. One, Lexol, is a leather preservative and consolidant. All of these are included here because records indicate they were applied to objects as pesticides.

The potential for pesticide residue remaining on collection objects is very high. Objects with such residues pose a health risk to curatorial staff and to the public who come into physical contact with them, unless proper precautions are taken. Additional information on health and safety issues and protective measures can be found in the *Museum Handbook*, Part I, Chapter 8, and several *Conserve O Grams*.

References

- Burns, Ned J. *Field Manual for Museums*. Washington, D.C.: National Park Service, 1941.
- Coleman, Laurence V. *Manual for Small Museums*. New York: G.P. Putnam's Sons, 1927.
- Lewis, Ralph, H. *Manual for Museums*. Washington, D.C.: National Park Service, 1976.
- _____. *Museum Curatorship in the National Park Service 1904-1982*. Washington, D.C.: National Park Service, 1993.

National Park Service. "Chapter 3: Museum Collections." *Museum Handbook*, Part I. Washington, D.C.: National Park Service, 1967.

_____. "Section XXIII: Museum Pests." *IPM Information Manual*. Washington, D.C.: National Park Service, 1985.

_____. "Museum Pests." *Integrated Pest Management Manual*. 2nd ed.

<<http://www.nature.nps.gov/wv/ipm/manual.htm>>

_____. "Chapter 5: Biological Infestations." *Museum Handbook, Part I*. Washington, D.C.: National Park Service, 1998.

Windholz, Martha, ed. *The Merck Index*. Tenth edition. Rahway, NJ: Merck & Co., Inc., 1983.

Additional Sources of Pesticide Documentation:

Harpers Ferry Center: Conservation Treatment records in the Office of the Registrar.

Harpers Ferry National Historic Park: Notes from conservation treatment records in park files.

Collection Management Plans from the following parks:

- Andrew Johnson National Historic Site, 1992
- Aztec Ruins National Monument, 1980
- Bandelier National Monument, 1980
- Big Hole National Battlefield, 1990
- Everglades National Park, 1989

- Fort Davis National Historic Site, 1983
- Fort Donelson National Battlefield, 1986
- Fort Laramie National Historic Site, 1992
- Mesa Verde National Park, 1988
- Virgin Islands National Park, 1993
- Yellowstone National Park, 1997

Department of the Interior Museum: Notes from conservation treatment records in museum files.

Responses from a pesticide survey conducted by Museum Management Program (MMP) intern Barbara Hammond in 1999 on file in the MMP office. The survey included the following parks, offices, and centers:

- Western Archeological and Conservation Center
- Harpers Ferry Center
- Denali National Park and Preserve
- Katmai National Park and Preserve
- Alaska Support Office
- Crater Lake National Park
- Bandelier National Monument
- Hubbell Trading Post National Historic Site
- Fort Davis National Historic Site

Pesticide Use Proposal System (PUPS) database in the Integrated Pest Management Program Office, Exotic Species Management and Ecosystem Restoration Branch, Biological Resource Management Division, National Park Service.

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Synonyms and Trade Names of Pesticides

Arsenic	arsenical soap						
Baygone	o-isopropoxyphenyl n-methyl-carbamate	Bifex	Blattanex	Invisi-Gard	Propyon	Suncide	Sendran
Benzethonium Chloride	Hyamine 1622	hemerol chloride	Phemeride	Phemithyn	Quatrachlor	Solamin	BZT
Benzol	cyclohexatriene	benzene	coal naptha				
Boric Acid	Perma Dust PT240	It Works	Drax Ant Kill	BoraCare	JECTA	BORID	Ultracide
Camphor Gum	2-camphanone	2-boranone	Japan camphor	Formosa camphor	laurel camphor	Chigarid	
Carbon disulfide	dithiocarbonic anhydride	carbon bisulfide					
Carbon tetrachloride	Benzinoform	Freon 10	Halon 104	Tetraform	Tetrasol	Necatorina	
Chloroform	trichloromethane	methyl trichloride	formyl trichloride	methane trichloride	R 20	trichloroform	
Chlordane	Velsicol 1068	Toxichlor	Niran	Octachlor	OrthoKlor	Corodane	Synklor
Chloreton	acetone chloraform	chlorbutol	Methaform	Sedaform			
Chlorpyrifos	O,O-diethyl O-3,5,6-trichloro-2 pyridyl phosphorothioate	chlorpyrifos ethyl	Dowco 179	Dursban	Lorsban	Pyrinex	
Combat	hydramethylnon	Amdro	Maxforce	Pyramdron	Wipeout	Amidino-hydrazone	
Contrac Rat and Mouse Bait	Bromodiolone	Bromone	Super-caid	Maki	Ratimus	Tamogam	Boldo
Copper-8-quinolate	oxine-copper	Culinate	Dokrin	Fruitdo	Milmer 1	Dormycin	Bioquin
Cuprinol Clear #20	copper naphthenate	copper salts	CNC	Troysan	WILTZ 65	Wittox-C	Copper-Nap-All
Cyanide	cyanides	isocyanide					
DDT	Dichlorodiphenyltrichloroethane	Dicophane	Agritan	Gesapon	Gesarex	Citox	Detox
Diazinon	phosphorothioic acid	G-24480	Basudin	Diazol	Garden Tox	Sepctracide	Drop Dead Insect Spray
Dichlorvos	dichlorophos	Shell No-Pest Strips	Vapona	Dichlorman	DDVP	Nuvan	Astrobot

Dowfume 75 or 75% ethylene dichloride and 25% carbon tetrachloride	carbon tetrachloride with EDC	dichloroethane mixture with tetrachloromethane					
Dri-die	silica aerogel with ammonium flucosilicate						
Drione	piperonyl butoxide with silica	Staffel's Ant and Roach Killer	D-Con Crawling Bug Killer				
Ethion	diethion	ENT 24105	Niagra 1240	Nialate	FMC 1240	Dormant 6E oil spray	Ethanox
Ethylene dichloride	1,2-Dichloroethane	ethylene chloride	EDC	Dutch Liquid	Brocide		
Ethylene oxide	Anprolene	Oxirane					
Formalin	Formaldehyde solution	Formol	Morbicid				
Hydrocyanic acid gas	Prussic acid	formonitrile	Cyclon				
Lexol	Neats Foot						
Lindane	gamma hexachlor	Amparasin	Gammalin	Jacutin	Kwell	Lindafor	Novigan
Malathion	o,o-dimethylphosphorothioate	Maldison	Cythion	Chemathion	malacide, malthion	Malaspray	Lice Rid
Mercuric chloride	mercuric bichloride	corrosive sublimate	mercury perchloride	corrosive mercury chloride	Fungchex	TL 898	
Methyl Bromide	monobromothane	bromoethane	Embafume				
Methyl formate-carbon dioxide mix	formic acid methyl ester						
Naphthalene	naphthalene	coal tar camphor	naphthalin	moth flakes	moth balls	white tar	Mighty 150
Orkin aid4E	Diazinon with xylenes						
Ortho-dichlorobenzene	Dichloricide	DCB	Chloroben	Dowtherme	Termitkil	Dilantin db	dichlorobenzol
Paradichlorobenzene (PDB)	PDB	Paracide	Para-zene	Di-chloridide	Paramoth	Evola	Global
Paranitrophenol	mononitrophenol	4-Nitrophenol	4-hydroxynitrobenzene	Niphen	PNP		

Pentachlorophenol	Mystox	PCP	Dowcide 7				
Permethrin	Ambush	Ectiban	Pounce	Dragnet FT	NIA 33297	NRDC 143	Permanone
Phenol	carbolic acid	phenic acid	phenylic acid	hydroxy-benzene	oxybenzene		
Potassium cyanide	potassium salt	hydrocyanic acid					
Premise 75	Imidacloprid	Confidor 2	NTN 33893	Admire	Merit	Gaicho	
Pyrethrins	TRI-DIE PT 230 (with piperonyl butoxide and silica)	Firmotox	Drione (with piperonyl butoxide)	pyrethrum	Buhach		
Pyrethrum	99+	pyrethrins	pyrenone	Buhach			
Quintox mouse seed	Cholecalciferol	vitamin D3	dehydro-chloesterol	Calciol	Deparal		
Recruit	Hexaflumuron	NAF 46	Sonet	DE 473			
Roach Rid	orthroboric acid	boracic acid	Borofax	Kill-Off	trihydroxyborane		
Rozol	chlorophacinone	Caid	Drat	Liphadione	Quick	Raviac	
Sodium fluoride	Fungol B	Roach Salt	Flordine	sodium monofluoride	Florocid	disodium difluoride	natrium fluoride
Swan Song							
Thymol	isopropyl cresol	Ro-Pel	methyl-2-isopropyl-1-phenol				
Vikane	sulfuryl fluoride	Termafume					
Warfarin	Rodex	D-Con	Ratox	Marevan	Rosex	Solfarin	Coumarin
Zinc Chloride	zinc butter	zinc dichloride	Pyresote wood preservative				