



WILDLIFE CONTROL STRATEGIES AND TECHNIQUES AT AIRPORTS

Ed Cleary

Staff Wildlife Biologist

Office of Airport Safety and Standards

Federal Aviation Administration

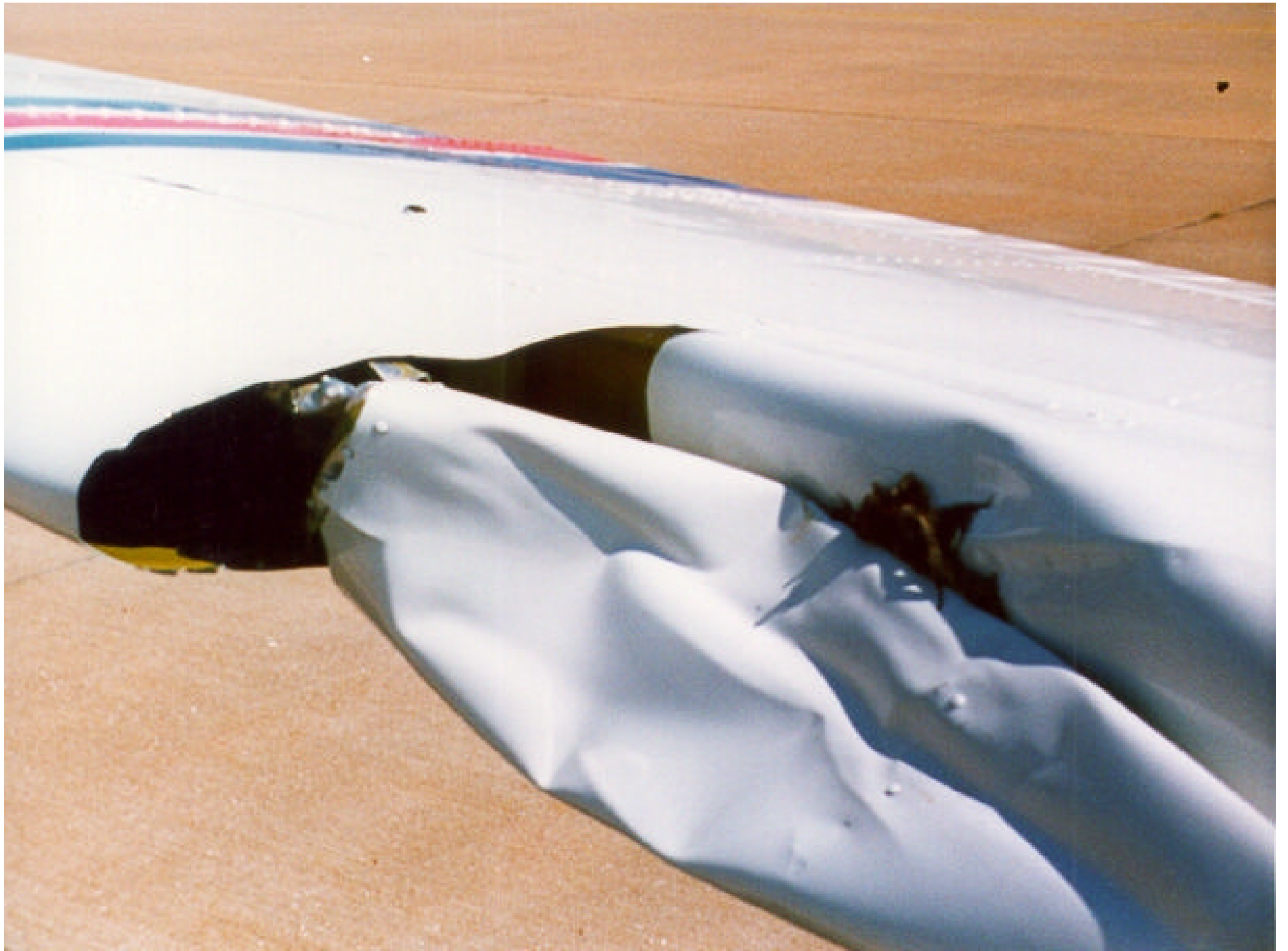










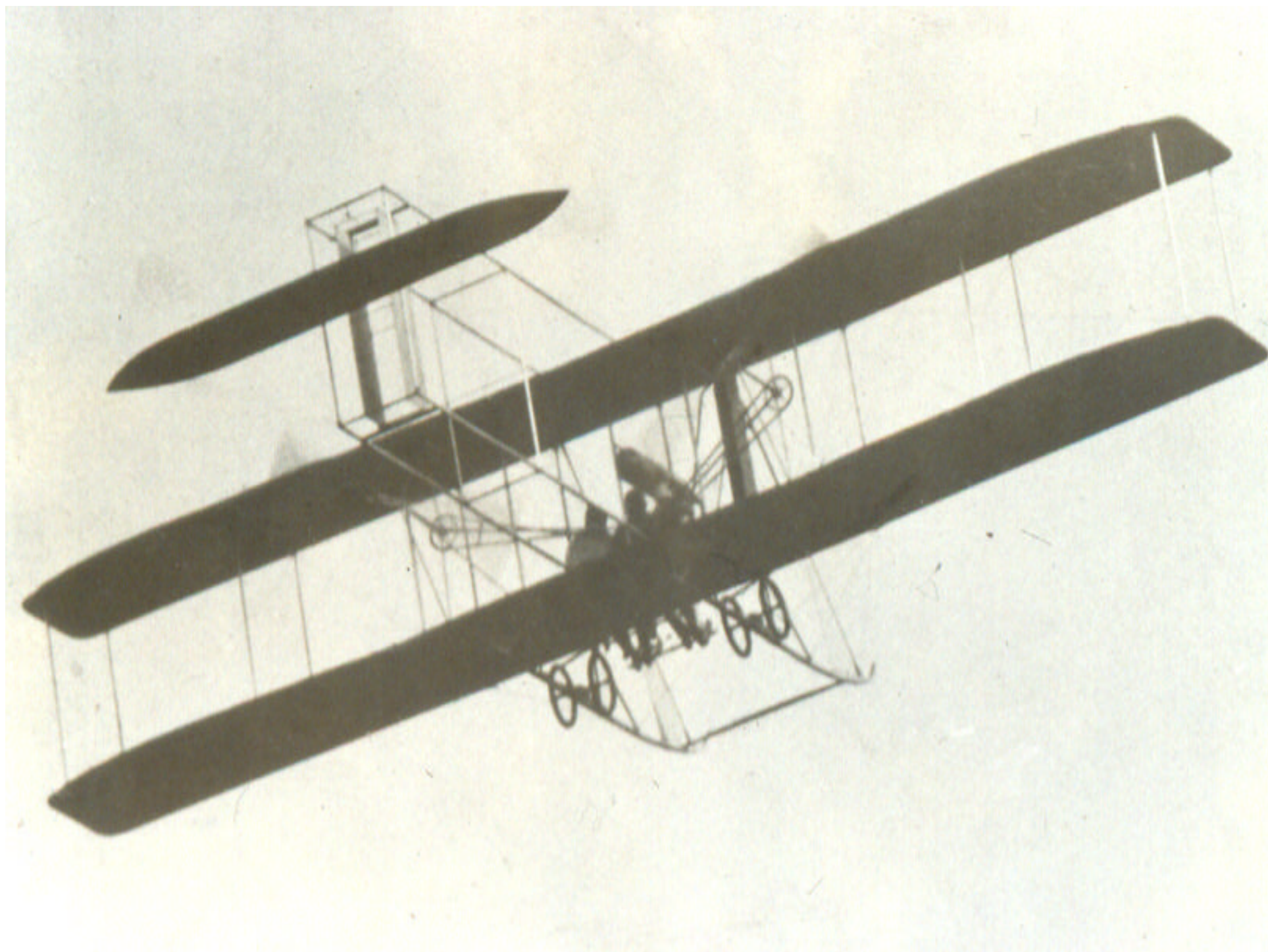




Reported wildlife strikes to civil aircraft resulting in human injuries or deaths, USA, 1990-1999.

	Birds	Mammals	Total
Strikes	67	16	83
Injuries	70	21	91
Deaths	6	0	6







ALBRAITH ROGERS

1ST AVIATOR TO CROSS THE CONTINENT



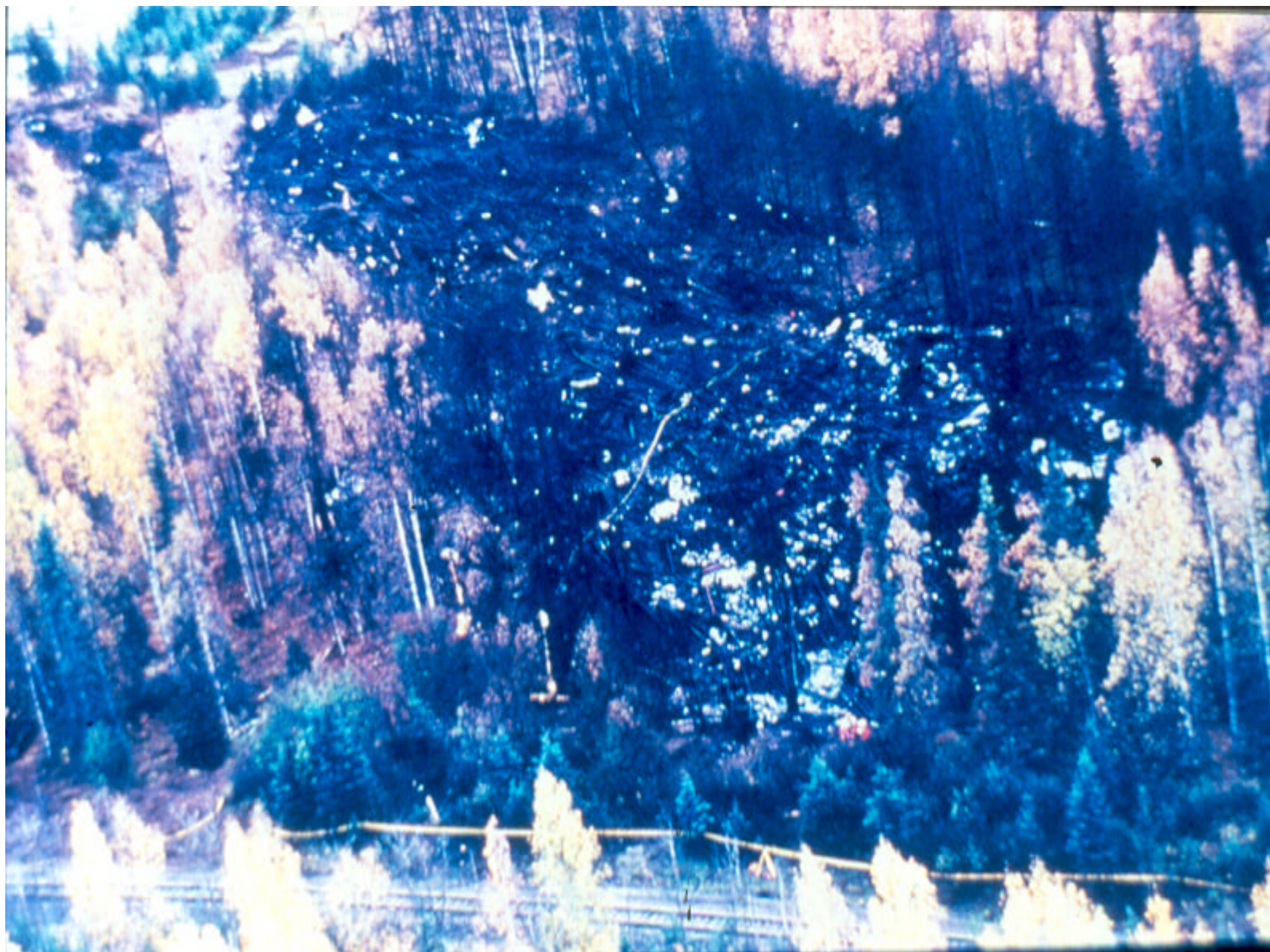
HIS FATAL WRECK - LONG BEACH - CAL.

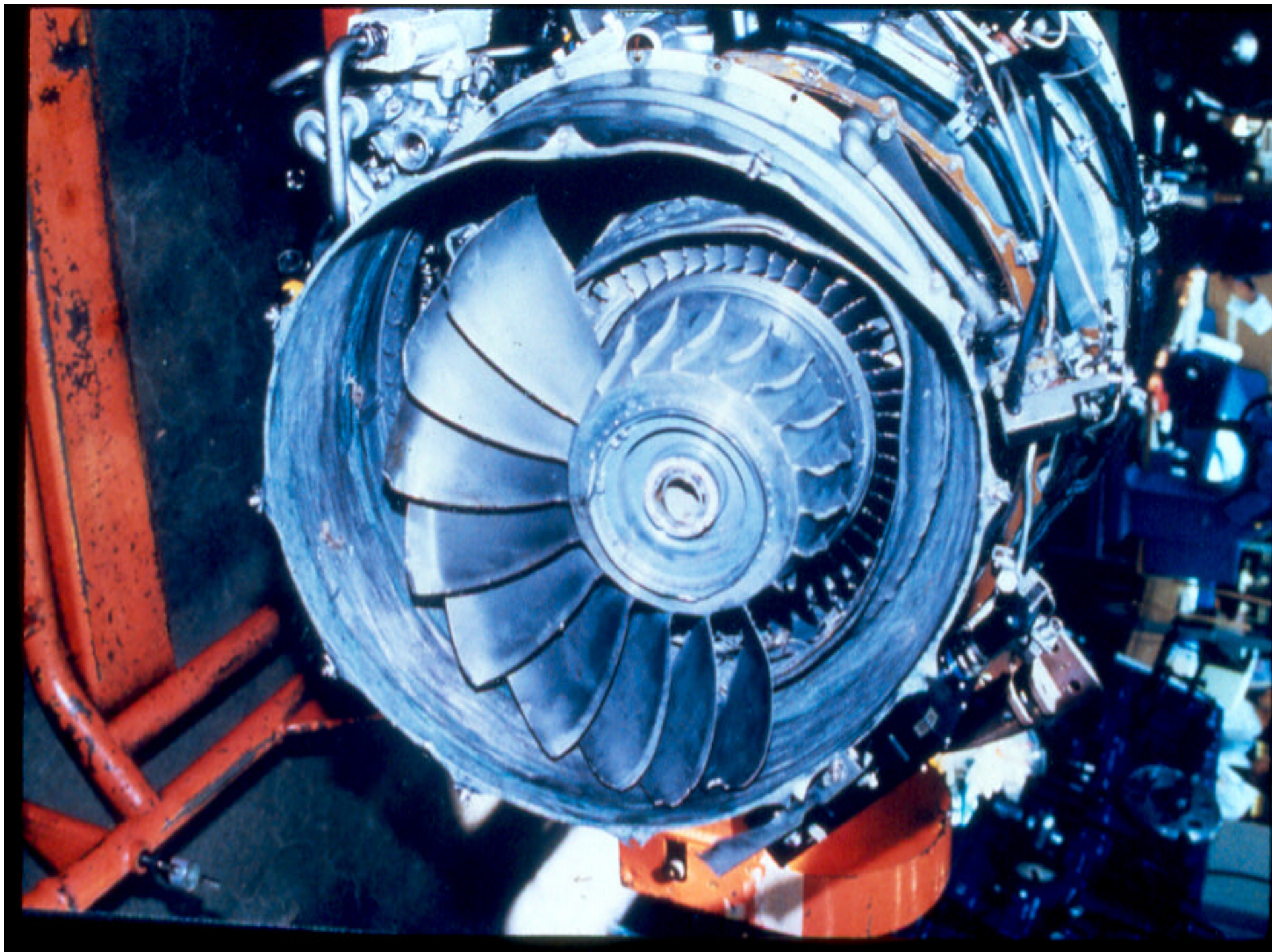














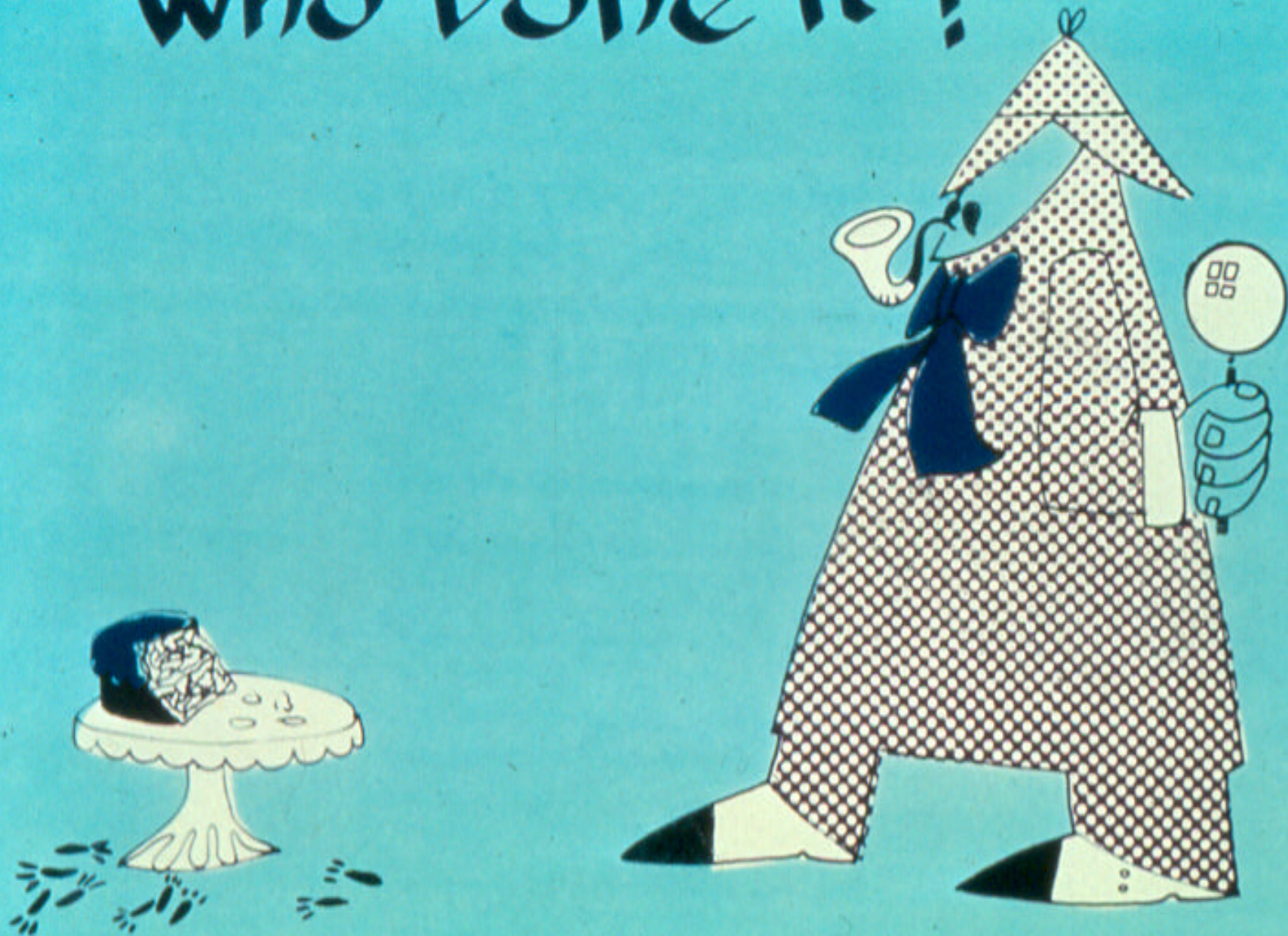


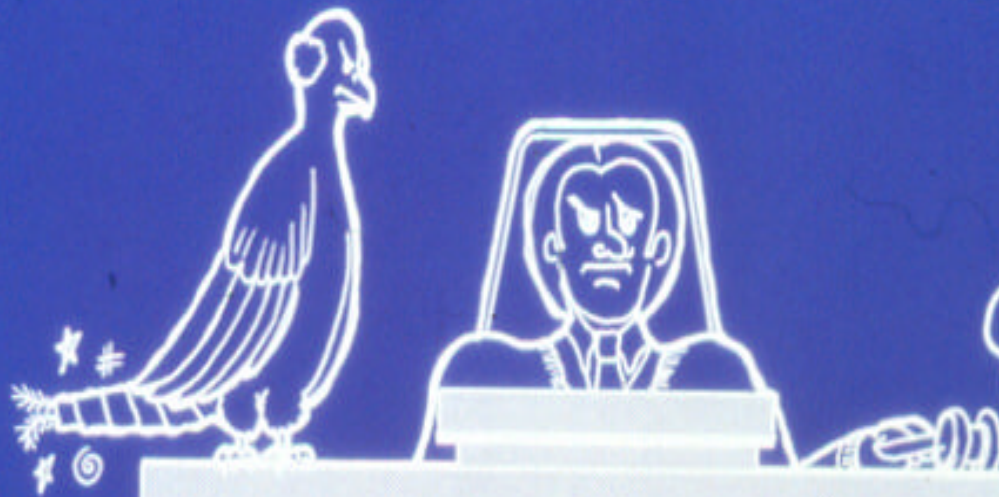


JUST THE FACTS, MAM,
JUST THE FACTS...



Who Done it?





BUT, YOUR HONOR, I
DIDN'T KNOW BALD EAGLES
WERE PROTECTED!





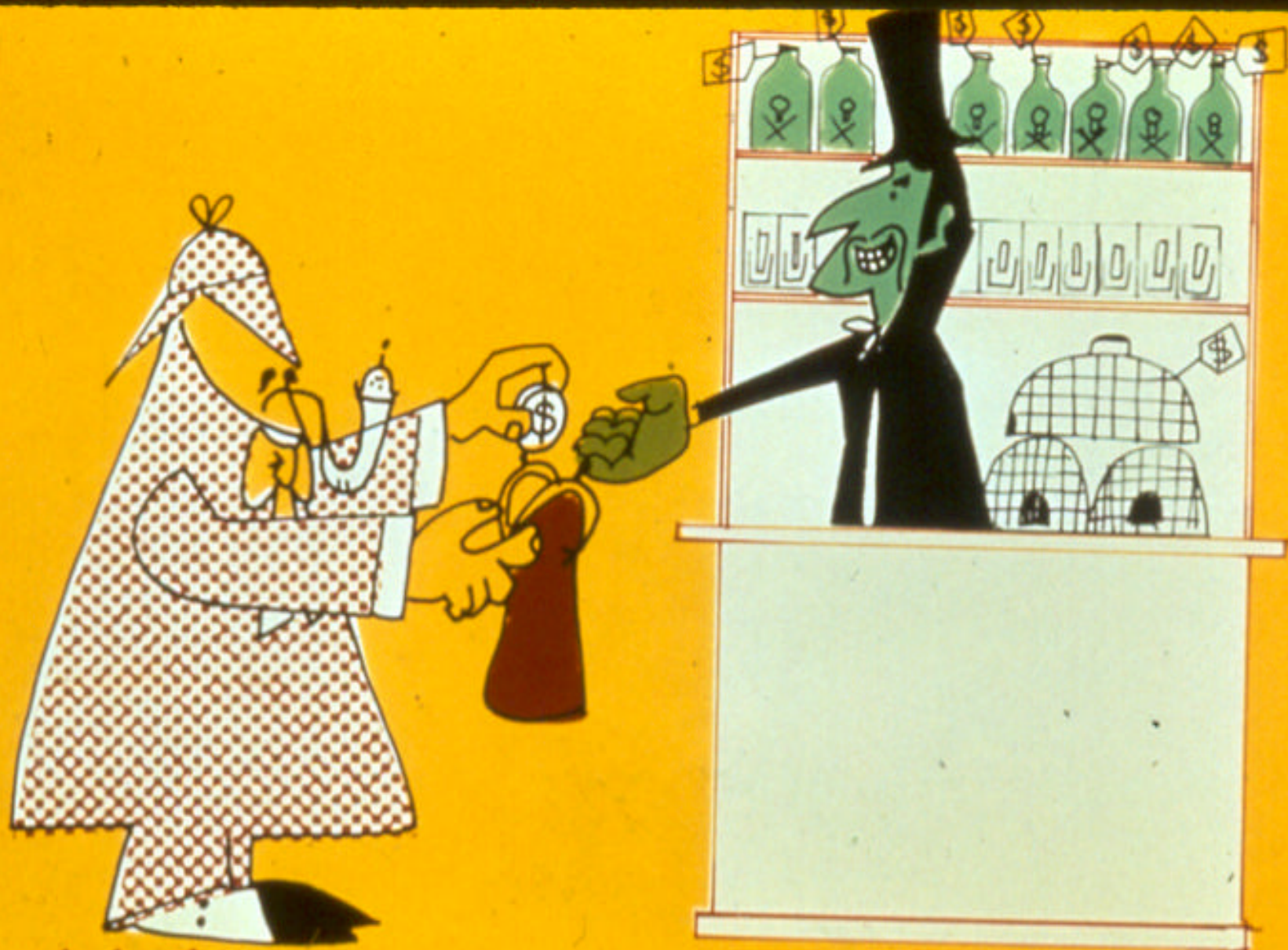
What are the habits
of the culprit ?

**WHICH
WILL BE
MORE
EFFECTIVE?**



How selective will the
methods be ?





What is it going to cost to catch him?





Edie Blackwell

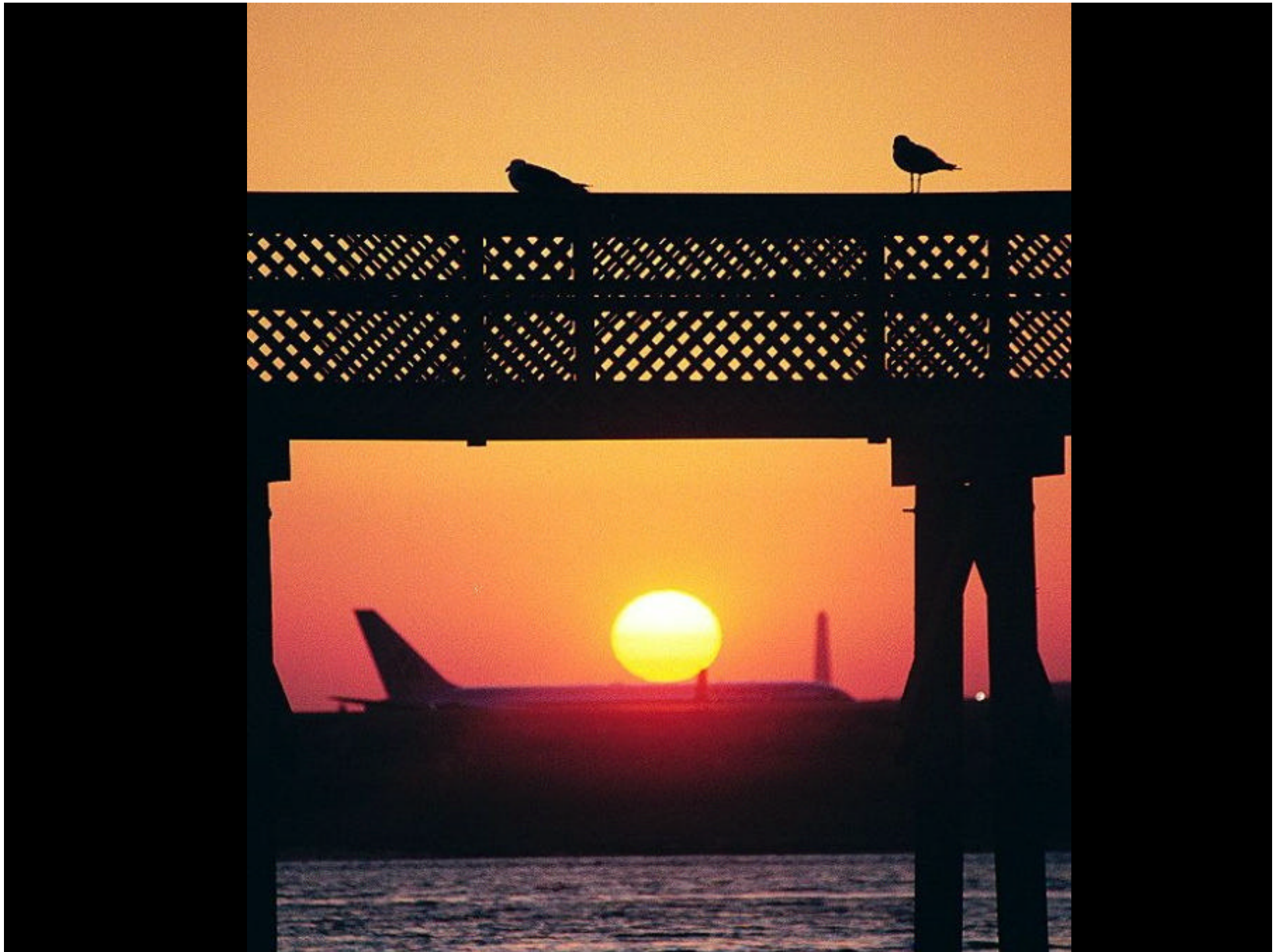
Wildlife Control Strategies

- ✈ Flight Schedule Modification
- ✈ Habitat Modification And Exclusion
- ✈ Repellent And Harassment Techniques
- ✈ Wildlife Removal

Flight Schedule Modification







Habitat Modification

‡ Food

‡ Cover

‡ Water



A silver, single-engine propeller-driven aircraft is parked on a concrete floor inside a large hangar. The aircraft has a blue NASA logo on its side. In the background, a large red aircraft with "NORTHWEST Airlines" written on its side is visible. The scene is well-lit, and the floor is clean.

Habitat Modification

Food











**THIS IS
PRIVATE PROPERTY**

NO TRESPASSING

NO FISHING

PLEASE DO NOT FEED THE DUCKS



Habitat Modification Cover

















Habitat Modification

Water





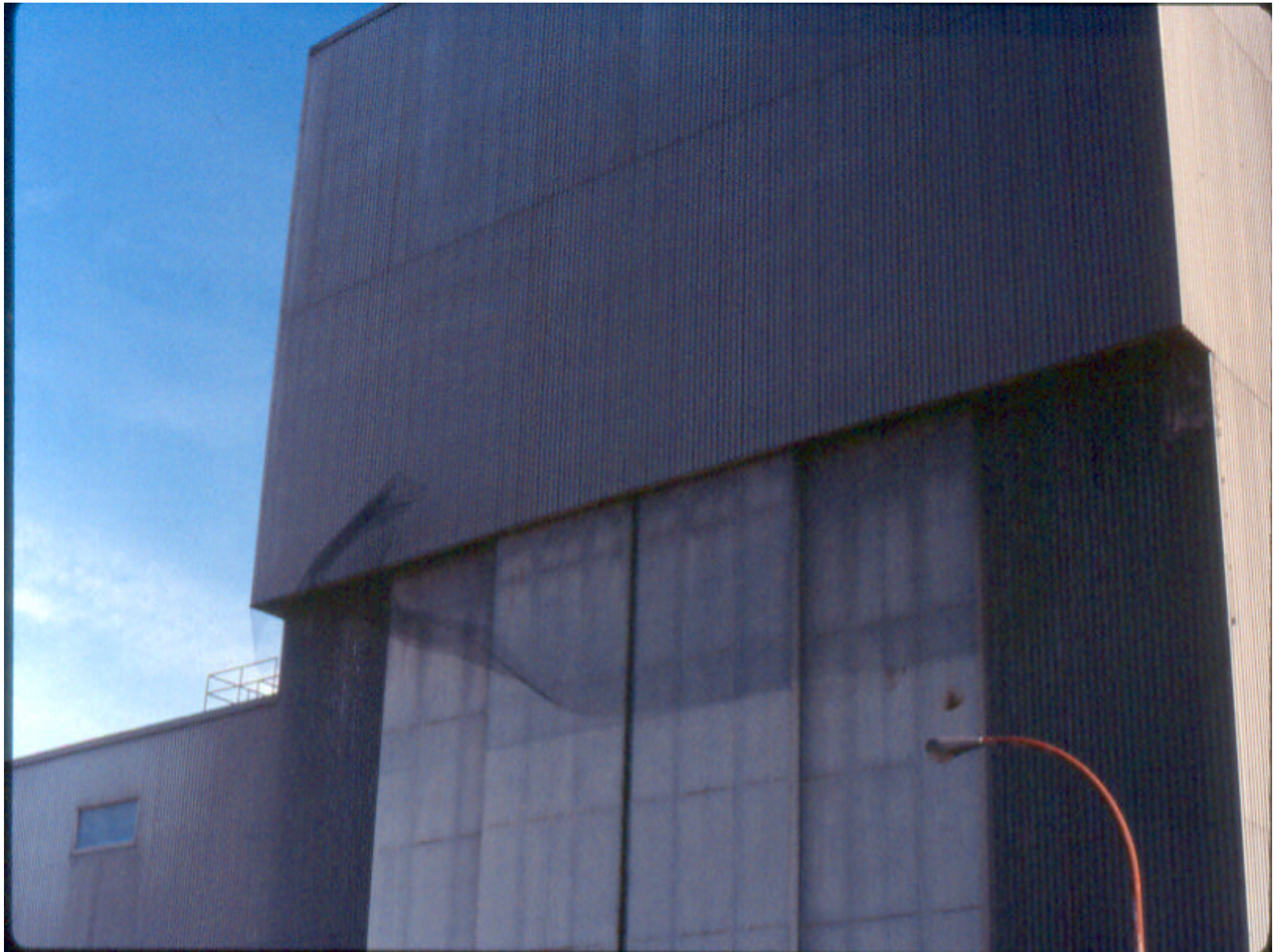


Exclusion Techniques



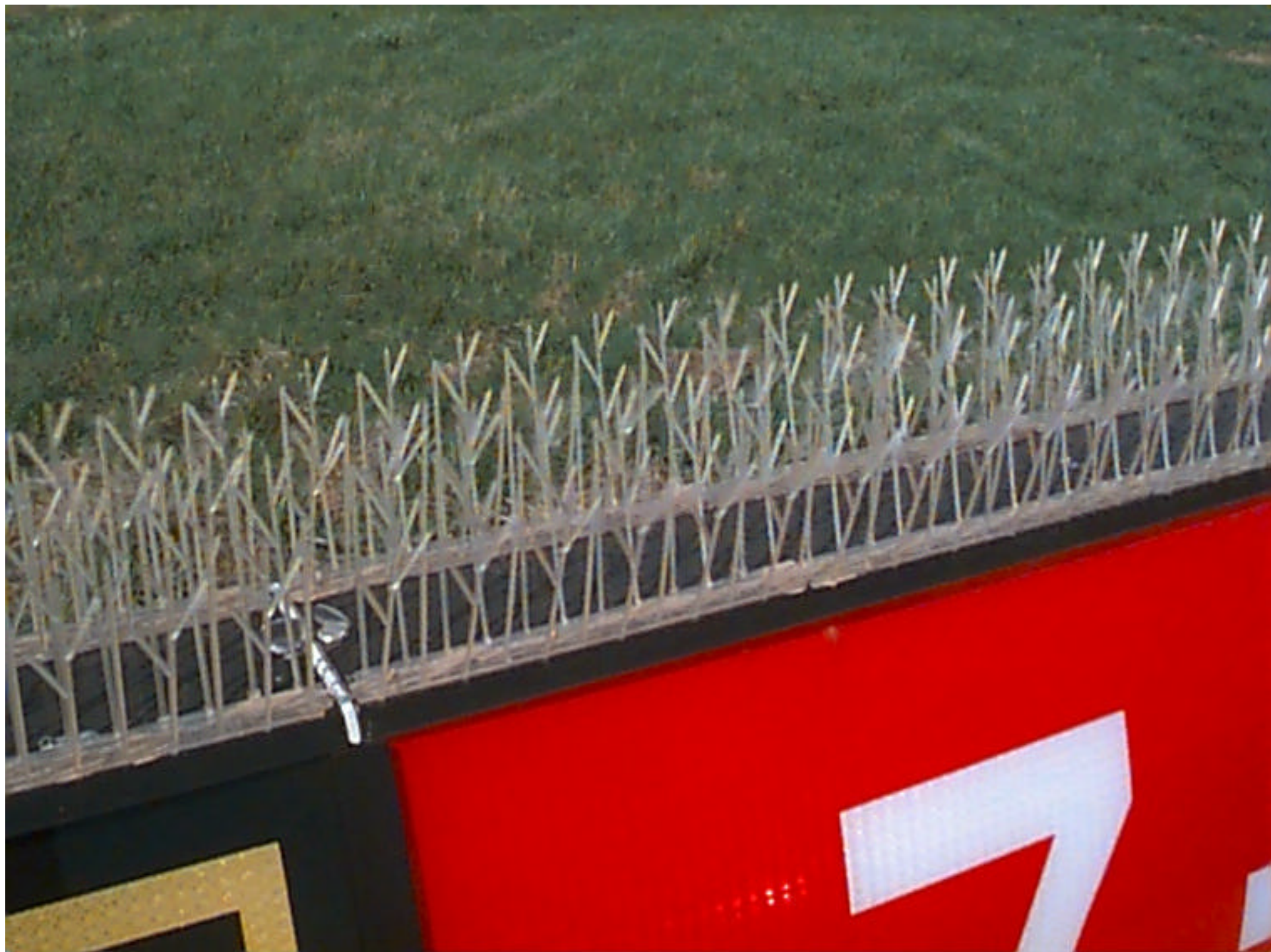


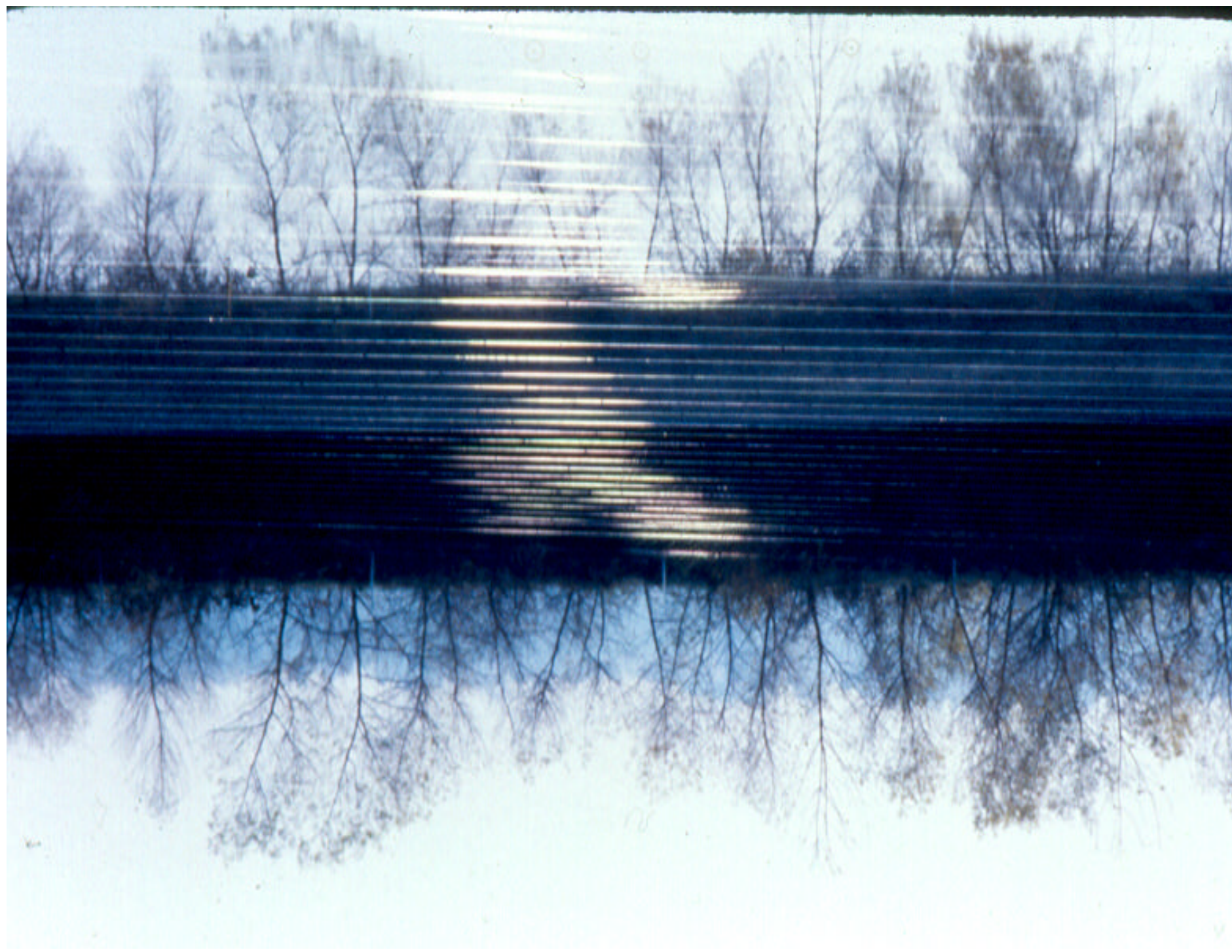
No Birds Allowed













Repelling Techniques



Repelling Techniques



Chemical

Audio

Visual





Minimizing Habituation

- ‡ Use sparingly
- ‡ Integrate a variety of techniques
- ‡ Reinforce with lethal control as needed.



Critical Factors

- ‡ No silver bullets
- ‡ No standard protocol
- ‡ Repelling is art and science
- ‡ Each wildlife species is unique



Wildlife Patrols Runway Sweeps



Chemical Repellents



Stops bird roosting



BIRD TANGLEFOOT

A STICKY REPELLENT



NO POISONOUS INGREDIENTS • NO FUMES OR ODORS • NO POLLUTION PROBLEM

Eliminate bird damage — stop the nuisance and noise — maintain clean sanitary conditions by controlling bird pests.

BIRD TANGLEFOOT is a non-drying compound which adheres to all surfaces, and retains its soft, sticky elasticity. BIRD TANGLEFOOT will repel birds for periods exceeding a year under average conditions. Used according to directions it will not injure birds, but the birds will not roost where it has been applied. Treat roosting places such as window sills, ridge lines of roofs, gutter edges, tops of signs, ornamental copings, cornices, and ledges.

**EFFECTIVE • ECONOMICAL • LONG LASTING • HUMANE • WEATHERPROOF
NONINFLAMMABLE • EASILY APPLIED • COLORLESS • ODORLESS**

Convenience and bulk packaging for all types of uses and users.



THE TANGLEFOOT COMPANY

314 STRAIGHT AVE., S.W.
GRAND RAPIDS, MICHIGAN 49504 U. S. A.

MADE
IN
U.S.A.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION: Avoid contact with eyes or clothing. When handling, wear safety glasses, and dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C). Wash thoroughly with soap and water after handling.

ENVIRONMENTAL HAZARDS

This product is slightly toxic to fish. For terrestrial uses, do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark.

Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

DIRECTION FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

USE RESTRICTIONS: This product may be used to repel Canada geese from golf courses and other turf areas. This product must be applied using appropriate spray equipment. Best applied by spray equipment, such as any garden pump sprayer or commercial power sprayer such as a power blast. Do not apply when grass is wet or when rain is expected.

DILUTION DIRECTIONS: Mix ReJeX-IT™ AG-36 with water at a ratio of 1 part product to 3 parts water. For example, mix 1 quart of product with 3 quarts of water to make 1 gallon of spray mixture. Mix product outside or in ventilated area.

APPLICATION DIRECTIONS: Apply at a rate of 80-95 lbs AG-36 (38-48 gallons of spray mixture, 11.6-13.8 lbs a.i.) per acre of turf area. Spray evenly on area to be protected to provide thorough coverage and allow material to dry before permitting human activity on treated area. Repeat every 4 days or as warranted by Canada goose activity. Do not mow the treated area for several days after application.

ReJeX-IT™ AG-36

ACTIVE INGREDIENT:

Methyl Anthranilate (MA), methyl 2-aminobenzoate 14.5%

INERT INGREDIENTS 85.5%

TOTAL 100.0%

ReJeX-IT™ AG-36 has been formulated from Food Grade ingredients that meet or exceed U.S. Food Chemical Codex (FCC) and U.S. Pharmacopoeia (USP) specifications and comply with the British Pharmacopoeia.

KEEP OUT OF REACH OF CHILDREN

CAUTION

See Left Panel for additional precautionary statements

Manufactured for

RJ Advantage, Inc.

a subsidiary of PNC SPECIALTIES GROUP, INC.

501 Murray Road, Cincinnati, Ohio 45217
1-800 HAD BIRD (423-2473) FAX (513) 482-7377
EPA EST. No. OH-004274031
EPA EST. No. 058035-OH-001 EPA REG. No. 58035-9
NET WEIGHT 40 lb - NET WEIGHT 18 kg

STORAGE & DISPOSAL

STORAGE: Store only in original container, in a dry place inaccessible to children, pets, and domestic animals. Store apart from pesticides, fertilizers, food, or feed that may cause cross-contamination from odor.

Store above 32 Deg. F. Keep container closed when not in use.

REPELLENT DISPOSAL: Spray mixture or rinse water that cannot be used according to label instructions must be disposed of according to Federal or approved State procedures. Waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

WARRANTY STATEMENT

NOTICE: The manufacturer warrants that this product conforms to the chemical description on its label. When used in accordance with label directions under normal conditions, this product is reasonably fit for its intended purposes. Since timing, method of application, weather, plant and soil conditions, mixture with other chemicals, and other factors affecting the use of this product are beyond our control, no warranty is given concerning the use of this product contrary to label directions, or under conditions which are abnormal or not reasonably foreseeable. The buyer and/or user assumes all risks of any such use.

Anthraquinone

 FLIGHT CONTROL™

Managing
Birdstrike Risks
With An Effective
Repellent



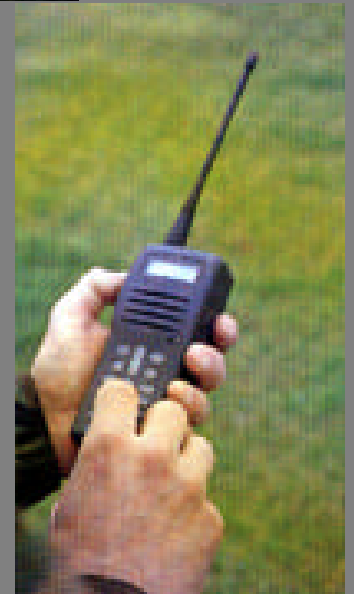
New For The
Airport Industry

ebi environmental
biocontrol, intl.

DCV Specialty Products, A Division of DCV, Inc.

Audio Repellents

















Ranges of Hearing

Species

Cycles/Second

Man

10 18,000

Pigeon

200 7,500

Sparrows

700 11,500

Starlings

700 15,000

Visual Repellents











Wildlife Removal Techniques

- ✈ Capture
- ✈ Relocating
- ✈ Killing





DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

3-201
(1/97)

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

PHILADELPHIA INTERNATIONAL AIRPORT
DIVISION OF AVIATION
TERMINAL C
PHILADELPHIA, PA 19153

2. AUTHORITY-STATUTES
16 USC 703-712

REGULATIONS (Attached)
50 CFR Part 13
50 CFR 21.41

3. NUMBER
MB673505-1

AMENDMENT

4. RENEWABLE
☒ YES
☐ NO

5. MAY COPY
☒ YES
☐ NO

6. EFFECTIVE
06/01/2000

7. EXPIRES
03/31/2001

8. NAME AND TITLE OF PRINCIPAL OFFICER (If #1 is a business)
MARK GALE
MANAGER OF OPERATIONS

9. TYPE OF PERMIT
DEPREDAATION

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

WITHIN THE PROPERTY BOUNDARIES OF PHILADELPHIA INTERNATIONAL AIRPORT, PHILADELPHIA, PA
TEL: 215-937-6916

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

D. Authorized to take migratory birds to reduce threats to aircraft and human safety, as described below. All takes must be done as part of an Integrated Wildlife Damage Management Program, using appropriate non-lethal management techniques. Non-lethal tools should be used to the extent appropriate in an effort to minimize lethal takes. All conditions are contingent upon State authorization, as required.

E. Authorized to kill, using **shotgun not larger than 10 gauge**, within runway and safety areas, up to **50 of each: Canada Geese, Ring-billed Gull and Mallard**. **AMENDMENT #1: Authorized to additionally kill, using shotgun not larger than 10 gauge, OR live-trap and euthanize, up to 200 Canada Geese.**

F. Authorized to destroy up to **30 Canada Goose nests and 10 Mallard nests**, and any eggs contained therein. Alternatively, authorized to freeze, shake, puncture, or oil (100% corn oil) and immediately replace the eggs in these nests for subsequent incubation.

G. Per 50 CFR 21.43, a permit is not required to kill, using **shotgun not larger than 10 gauge, blackbirds, cowbirds, grackles or crows** threatening aircraft or human safety on the airport property. You are not required to report any takes under this Condition, but must comply with requirements under 50 CFR 21.43. European Starlings, Rock Doves (Feral Pigeons), House Sparrows and Mute Swans are not protected under Federal law and may be taken at any time.



Capturing



Chemicals



1 kg alpha-Chloralose 99,5%
Lot No. 631

Giftklasse / Classe de toxicité

3

99.5%

Gefahr
Danger

ALPHA-CHLORALOSE

Nicht einnehmen.
Für Kinder und Unbefugte
unerschbar aufbewahren.

Ne pas absorber. Conserver
hors de portée des enfants et
des personnes non compétentes.

HARMFUL BY INHALATION AND IF SWALLOWED
KEEP OUT OF REACH OF CHILDREN / KEEP AWAY FROM
FOOD, DRINK AND ANIMAL FEEDING STUFFS / AVOID
CONTACT WITH SKIN AND EYES / AFTER CONTACT WITH
SKIN, WASH IMMEDIATELY WITH PLENTY OF WATER

Lot No.
date

NOT FOR FOOD AND/OR DRUG USE
FOR LABORATORY USE ONLY

Shelf live

BIOSYNTH AG

Rietlistr., Unteres Buriel / CH-9422 Staad

COUNTRY OF GERMANY
SWITZERLAND

ANIMAL DAMAGE CONTROL ALPHA-CHLORALOSE TRAINER/APPLICATOR TRAINING CERTIFICATE



United States
Department of
Agriculture

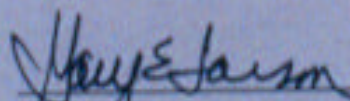
Animal and
Plant Health
Inspection
Service

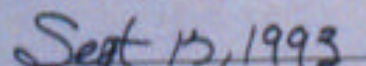
Animal Damage
Control

This is to certify that:

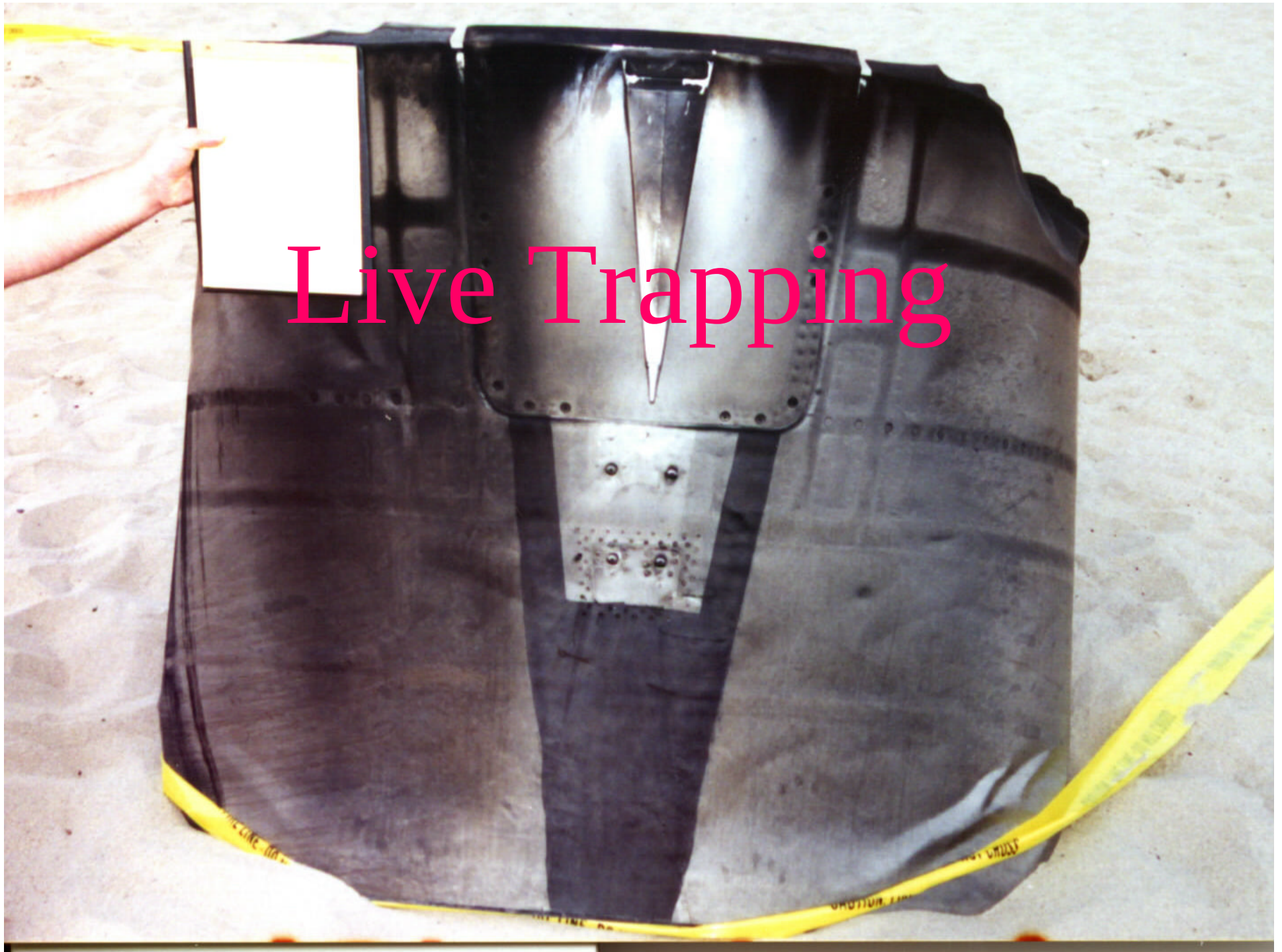
Edward Cleary, Assistant State Director

has satisfied the Animal Damage Control training requirements for the use of alpha-chloralose as an avian immobilizing agent. The above named individual is hereby approved to use, supervise its use, and train others in the use of this agent as authorized by the ADC Chemical Immobilizing and Euthanasia Directive.


Regional Director


Date

Live Trapping





















Killing





Justification For Lethal Control

- ‡ Document economic, safety, or health threat
- ‡ Document inadequacy of non-lethal methods
- ‡ Assessment of impact of killing
- ‡ Document effectiveness of killing
- ‡ Recommendations for reducing need for lethal methods in future.

Destroying Nest And Eggs

















Shooting





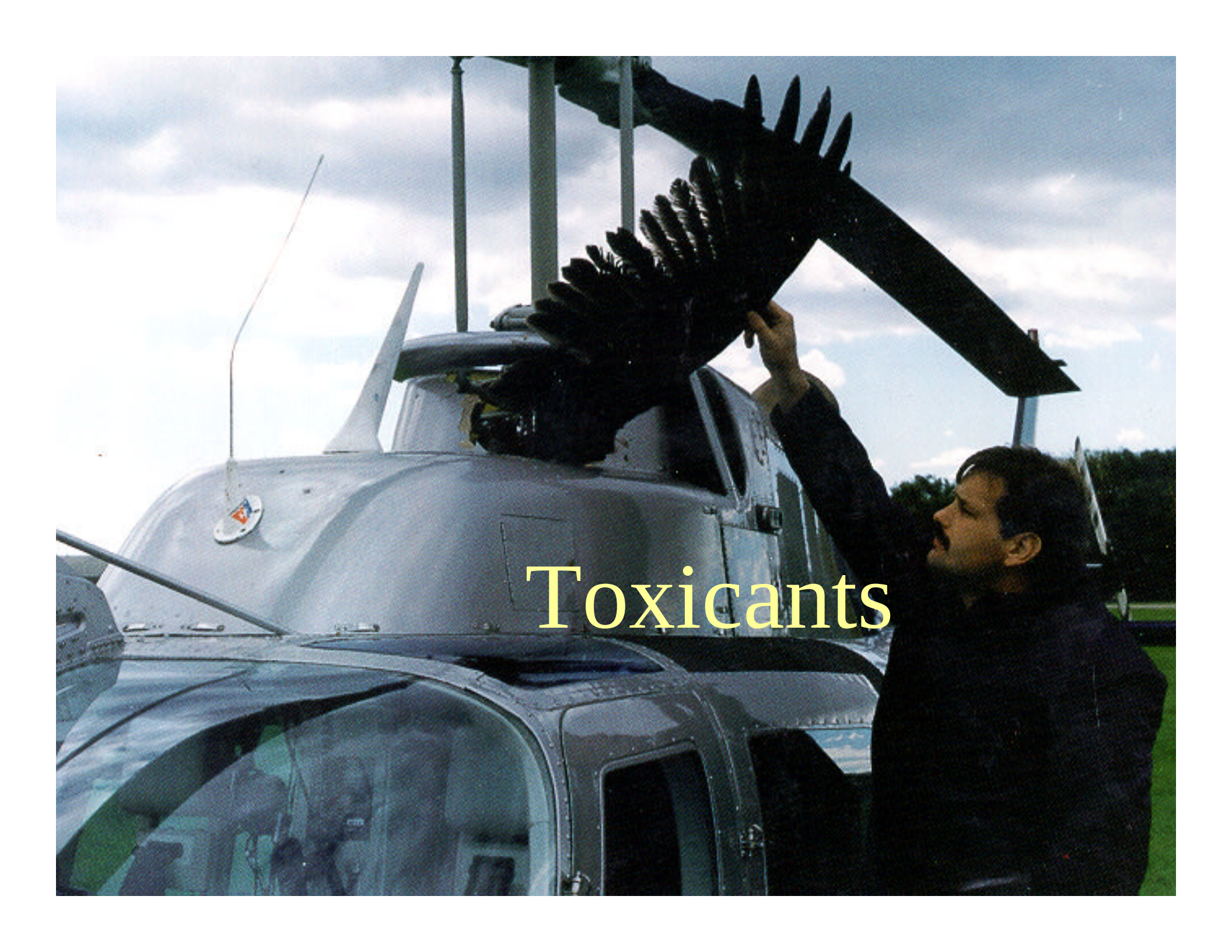




Cardinal Rules for Shooting

- ‡ Trained personnel
- ‡ Appropriate gun
- ‡ Have necessary permits
- ‡ Notify local law enforcement



A man with a mustache, wearing a dark jacket, is working on the tail rotor of a helicopter. He is holding a large, dark, curved component, likely a tail rotor blade, and appears to be inspecting or adjusting it. The helicopter is light blue and has a small circular insignia on its side. The background shows a cloudy sky and some greenery.

Toxicants



3-cholor-p-toluidine HCl

‡ DRC-1339

‡ Starlicide





The background of the slide is a photograph of a sunset or sunrise over a body of water. The sky is a warm, golden-yellow color, and the water reflects the light. In the foreground, there are dark silhouettes of birds. One bird is in flight at the top center, with its wings spread. Another bird is standing on the right side, facing left. There are also some smaller silhouettes of birds in the water or on the shore.

Successful airport wildlife management requires personnel who are:

- Highly motivated
- Well trained
 - Knowledgeable about wildlife
 - Knowledgeable about control techniques

Must Integrate All 4 Control Techniques

- ‡ Flight Schedule Modification
- ‡ Habitat Modification - Exclusion
- ‡ Repelling and Harassment
- ‡ Wildlife Removal





The End

Thoughts?

Questions?

Comments?

Thanks for your attention.!