

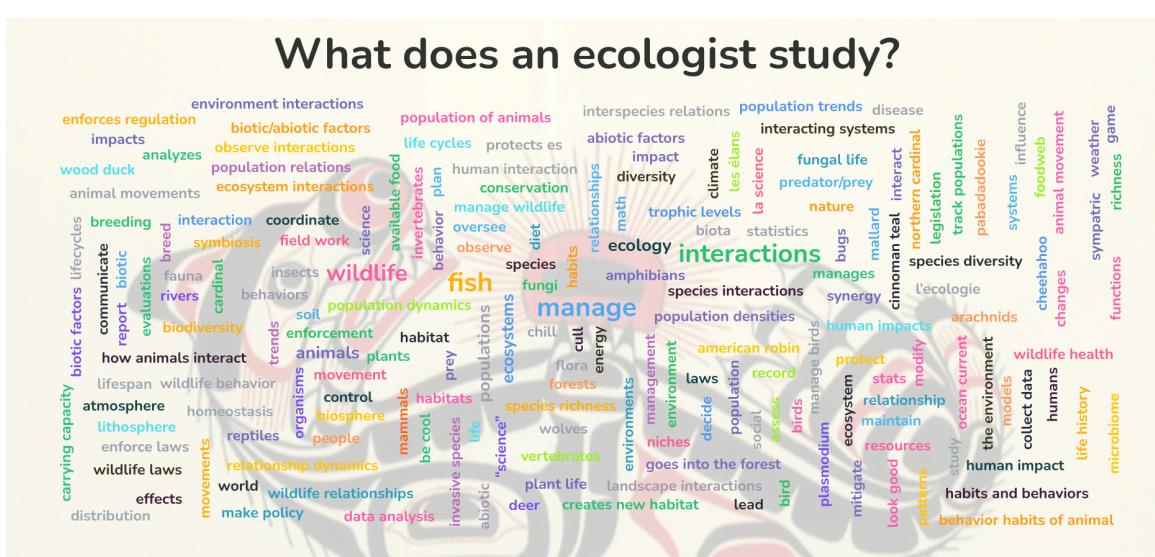
The North American Model of Wildlife Conservation

EFB 390

Dr. Elie Gurarie

October 18, 2022

1 / 32



Lots of things. Including think and worry about interactions.

What are some goals of Wildlife Management?



Focused on single-species populations

goals

- Grow them
 - Lower them
 - Harvest sustainably
 - Do nothing

tools

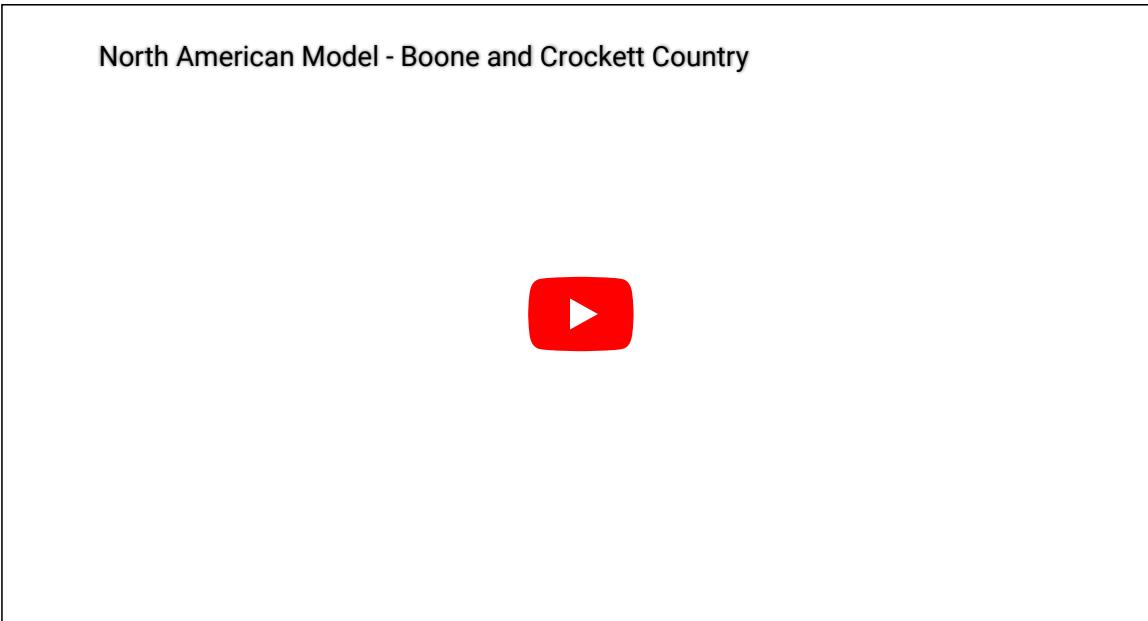
- count them
 - assess / improve habitat
 - understand population
 - understand interactions
 - understand disease & physiology

3 / 32

Not-so Pop Quiz



Shane Mahoney makes his pitch:



5 / 32

Historical background

Pre-1492, human population in Americas highly uncertain, but likely highly populated (10-200 million people)

Land managed for game and agriculture - plantings / fires / clearings / terracing.

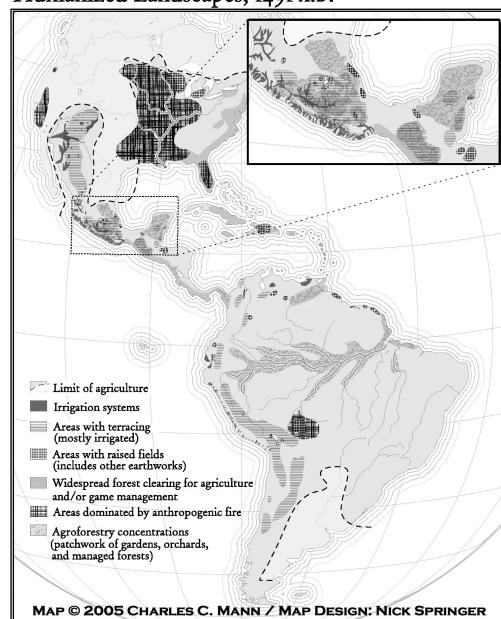
pristine wilderness is a persistent myth

You could drive a wagon through the forests of New York & Ohio.

Small founder population ($N_{eff} < 80?$), susceptibility to disease + genocide left a highly depopulated "pristine" wilderness *Romanticized* in 19th century.

Denevan 1992

Humanized Landscapes, 1491 A.D.



Despite its complexity, this map of Indian effects on the environment is incomplete. The most important omission is fire. I have highlighted some areas where indigenous fire effectively controlled the landscape, but Indian burning played an important ecological role throughout the hemisphere. Similarly, scattered clearing, burning and earth movement for drainage occurred in all agricultural areas—this map indicates only those areas in which these factors were especially concentrated.

6 / 32

Meanwhile: in (feudal) Europe

Wild-lands were rapidly cultivated and developed.

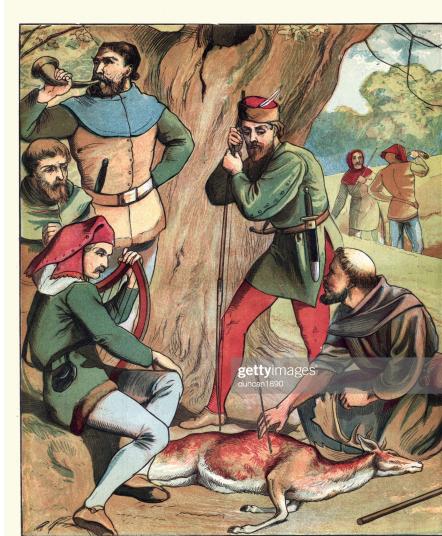
Feudal system preserved remaining wilderness as strictly **property of the king**, with especial claim on "higher game", esp. **deer, boar**.

Poaching strongly deterred (hanging / blinding / maiming / etc.)

This conflicted with common-use of land, though small game (rabbit snaring, bird netting) remained legal.

Game Laws of England (~1400) made wealth was a **legal prerequisite** to hunt.

Motivated several peasant rebellions.



Robin Hood

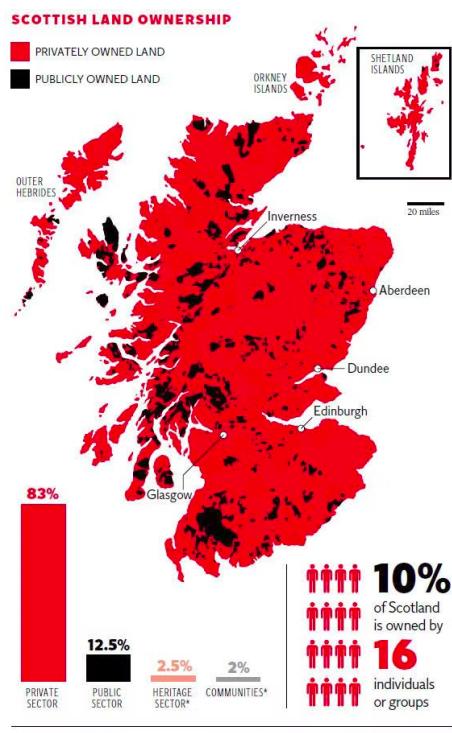
7 / 32

In modern Europe (well ... Scotland)

- Most land private
- Wildlife belongs to landowner
- **Ghillies** (fish) | **Stalkers** (fowl) | **Keepers** (game)
- Hunting - largely - sport of elite
- No predators! No forests!

However:

- Landowners may lease land for hunters to take meat to market
- All land is accessible



8 / 32

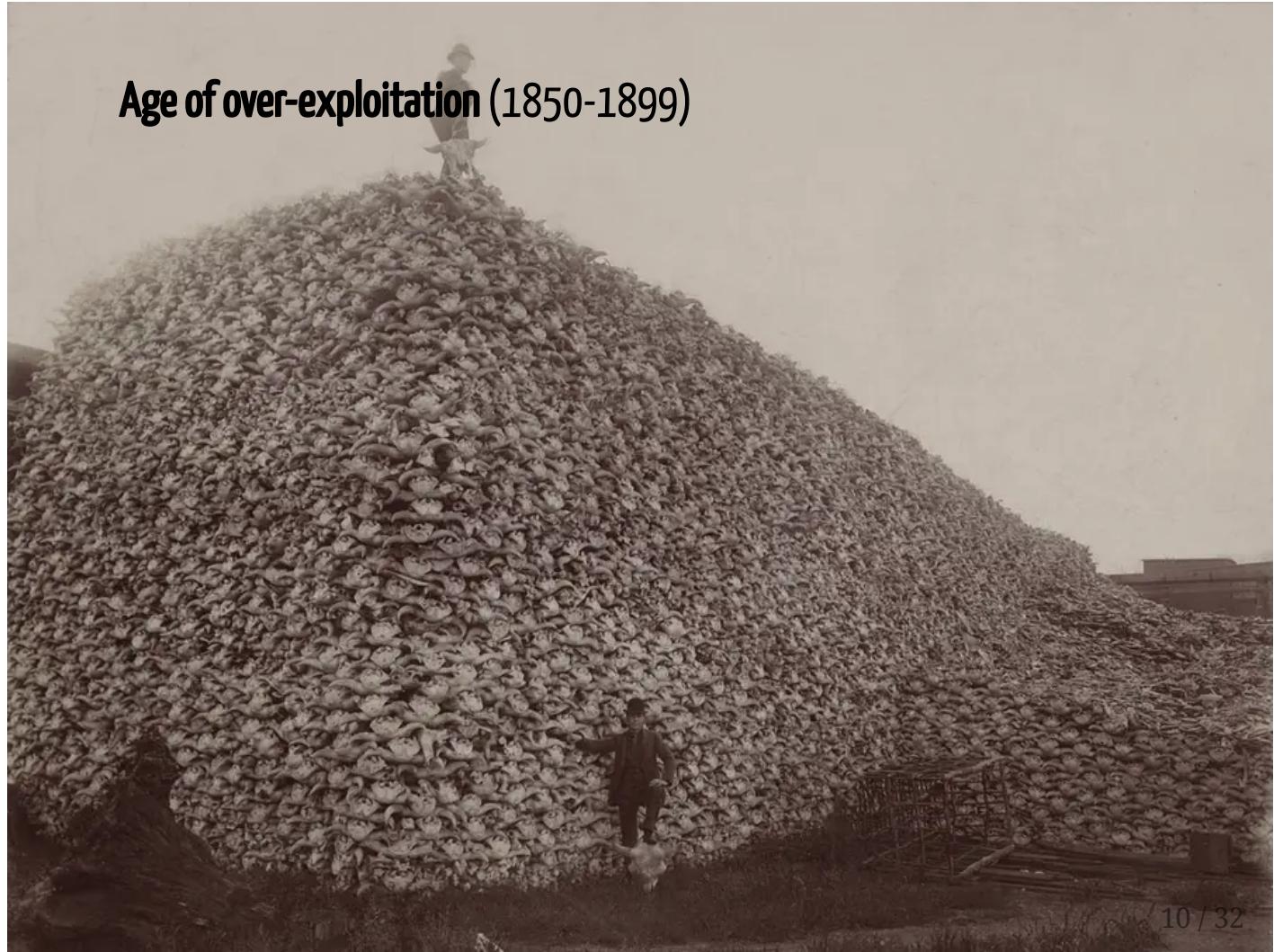
Shane Mahoney explains Public Trust

North American Model - Boone and Crockett Country



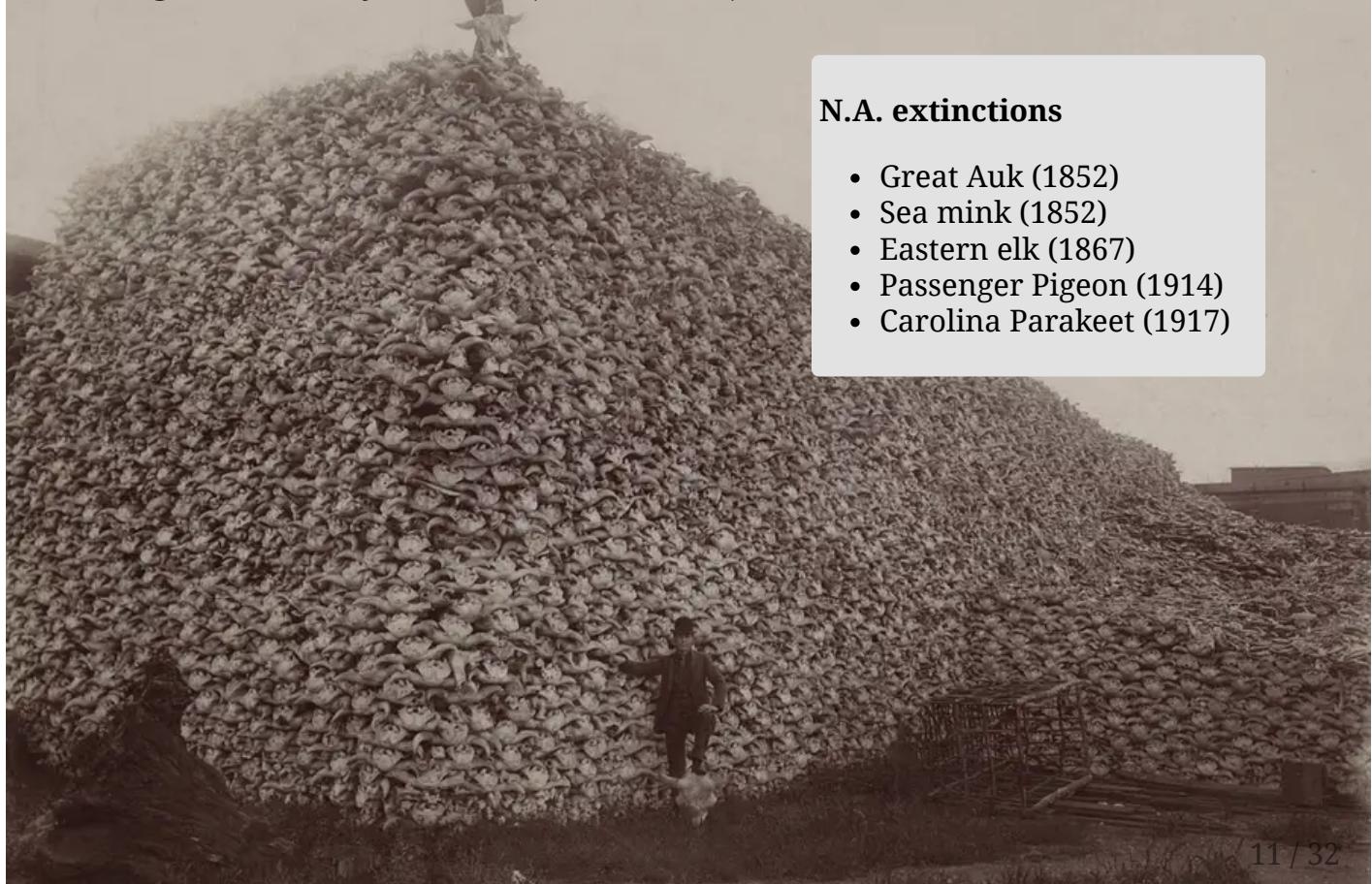
9 / 32

Age of over-exploitation (1850-1899)



10 / 32

Age of over-exploitation (1850-1899)



N.A. extinctions

- Great Auk (1852)
- Sea mink (1852)
- Eastern elk (1867)
- Passenger Pigeon (1914)
- Carolina Parakeet (1917)

Resource exploitation

Fueled the expansion of people across the continent.

Industrial Revolution changed society

- 1820, 5% urban (much subsistence)
- 1860 - 20%; 1900 - 40%

leads to **markets for wildlife** to feed urban masses and *festoon* wealthy elites.

Market hunters first along coastal waters and interior forests. Railway & refrigeration brings bison (*Bison bison*), wapiti (*Cervus elaphus*), and other from West to cities in East.

The market hunter left many once-abundant species teetering on the brink of extinction.

DINNER	
TUESDAY, APRIL 18, 1899.	
Oysters 25	Clams 25
Consummés, Adeline 50	Cream of artichokes, Morlais 50
Bisque of scallop, Vergniaud 50	Cream of asparagus, leeks 60
Chicken broth 25	Croûte au fromage 40
Pettico marmites 80	Croutons 25
Celer 40	Dauphine 25
Rallines 20	Duchesse 25
Bitter sweet pickles 15	Eggs 25
Gherkins 15	Lyonnaise 25
Mackerel, white wine 60	Chumney 15
Celery 40	Anchovies on toast 20
Rallines 20	Mackerel in oil 50
Squab 80	Staffed olives 33
Fried troutfish 50	Westphalia ham 60
Pompano, Duclair 60	Palmettes of snips, Osborn 1 00
Baked troutfish 50	Fish shell crabs 1 00
Fried troutfish 50	Haddock, hollandaise sauce 60
Stuffed shoulder of lamb, macedoine 80	Baked Spanish mackerel 70
Sirloin of beef with mashed carrots 75	Shad roe, American sauce 85
Vol-au-vent, financier 1 75	Kingfish, meunière 80
Fresh mushrooms on toast 1 25	Fricandeau de veal with spinach 80
Braised beef with noodles 75	Glazed ham with Madeira 60
Stuffed shoulder of lamb, macedoine 80	Pullet, English style 1 35
Sirloin of beef with mashed carrots 75	Tournedos of filet of beef, Laugierpierre 2 50
Half chicken, Vienna style 1 25	Lamb cutlets, Victor Hugo 1 50
Pigeon with pose 1 00	Sweetbread, Neapolitan style 1 20
Squab 80	Terapeake, Maryland or Baltimore 2 50
Seed-birds 1 50	Roast
Stuffed duck 1 50	Spring lamb 80
Canvas-back duck 1 50	Beef 60
Ruddy duck 1 50	Mutton 60
Entrees	Red-head duck 3 00
Turkey 1 00	Mallard duck 1 50
English snipe 75	Loin of lamb, mint sauce 60
Squab 80	Beef à la mode 60
Seed-birds 1 50	Squab 80
Duckling 2 50	Snipe 75
Chickens 3 00	Beef à la mode 60
Preserved asparagus 50	Turnips, Maryland or Baltimore 2 50
Macdoine 60	Roast
Escarole 30	Macdoine 60
Maccodine 60	Roman 50
Roman 50	Italian 1 00
Celery 1 00	Dandelion 30
Tomato 60	Vegetables
Onions, Soublis sauce 40	Parfait cake fried in butter 40
New potatoes 20	Potatoes, gastronomic 30
Parmentier 30	Hashed and baked with cream 30
Gratin 40	Stewed 30
Cœurs 1 00	Anna 30
Fried egg-plant 40	Bernarda 30
Cauliflower 40	Lima beans 40
Spaghetti, Neapolitan 50	French peas 50
Macdoine, lasagne or parisienne 40	Stewed tomatoes 30
Spinach 40	Stuffed egg-plant 75
Flageolet beans 50	Preserved asparagus 60
New string beans 75	French string beans 50
Preserved artichoke bottoms 1 00	Arling 60
New string beans 75	Macdoine 60
Preserved artichoke bottoms 1 00	Sweet peppers 60
Charlotte russe 20	French beans 60
Cream meringue 30	Green peas 60
Brandy 25	ENTREMETS
Charlotte russe 20	Bavaroise with vanilla 30
Cream meringue 30	Renaissance pudding 40
Brandy 25	Custard 30
Peach pie 25	Cabinet padding, marchandino 40
Brandy 25	Madeira jelly 30
Entremets	Dessert
Ice cream meringue 30	Bavaroise with white coffee 30
Plombière de marrons 40	Basket of strawberries with maraschino 30
Tutti frutti 35	Nestecôte 40
Creams: Strawberry 30	Biscuit glace 35
Lemon 30	Neapolitan 35
WATER LIPS: Lemon 30	Coupe, Tortoni 40
French 30	Ice cream Charlotte 35
Orange 35	Madrine 35
Water Lips 30	Chocolate 30
Orange 35	Pistachio 30
WATER LIPS: Orange 30	Raspberry 30
French 30	Lalla Fouch 40
Orange 35	Banana 30
Preserved cherries, strawberries, green gages or apricots 35	White Côte Rouge 50
Jam, jelly, Dundee, apricots, strawberries, currants, peaches, ginger or Guava 30	Assorted and flavored 35
Bar-le-Duc 40	Stewed prunes 30
Preserved pineapple, quince, peach or pear 30	Preserved pineapples, quince, peach or pear 30
Nuts and raisins 30	Nuts and raisins 30
Brandy pears, figs, green gages, cherries or peaches 40	Peaches, Carresa 40
Pears 35	FRESH FRUIT
Strawberries 30	Green 30
Apples 30	Apples 30
Grapefruit 75	Strawberries 30 with cream 70
Bananas 20	Bananas 20
Pineapple 30	Apples 30
Gruyère 25	Gruyère 25
Gorgonzola 30	Gorgonzola 30
Chese: Roquefort 30	Chese 30
Sultons 40	Chester 30
Gervais 30	Pont l'Evêque 30
Edam 30	Brie 30
Dilmónico's French coffee 15	Bianca S/T Turkish coffee 50

Hunting as genteel sport

Urban population has leisure time.

Hunting pursued for "rigors" and "challenges" of the chase under conditions of "fair play" (influenced by Europe).

Conflicts between **market hunters** who profited and new breed of (elite) hunters who placed value on live wildlife and their sporting pursuit of it.

These sport hunters organized and developed **influential clubs** and **wildlife refuges**.

True sportsmen were those who hunted for pleasure (never for profit), who in the field allowed game a sporting chance, and who possessed an aesthetic appreciation of the whole context of sport that included a commitment to its perpetuation. (paraphrase of Grinnell)

13 / 32

Era Of Protection (1850-1899)



Theodore Roosevelt
(1858-1919)

*Big hunter.
President of U.S. -
1901-1909*

Fancy New Yorkers Grinell and Roosevelt compare notes about good times out west ... realize lots of stories don't match because so much game was lost in the meantime.

Founded **Boone and Crockett Club** in 1893 advocating for a network of public protected game reserves.

Habitat protection became synonymous with wildlife stewardship. **BUT** the main goal was producing more **game** species for **sportsman-like** hunt.



George Bird Grinnell
(1849-1938)

Lots of strongly worded editorials in Field and Stream

14 / 32

Era Of Protection (1850-1899): Old Boy's Club



Early conservationists.

15 / 32

Era of conservation

Lacy Act of 1900

Iowa Republican congressman **John Lacy** (Boone & Crockett club member), signed into law in May 1900 by Republican William McKinley.

Illegal to traffic in fish, wildlife, or plants that are illegally taken, possessed, transported, or sold.

Amended in 2008 to expand ranges and species that are illegally taken outside the US

Also requires importers to file a declaration identifying the scientific name, value, quantity, and country

16 / 32

Era of Conservation

Migratory Bird Act of 1918 (MBTA)

Frank Chapman (Boone & Crockett club member, friend of Roosevelt, curator of Birds at the AMNH, founder of the Christmas bird count) lobbied Roosevelt to expand and enact previous legislation.

Treaty signed with the UK (via Canada, which was a colony at the time)

1920 **Louis Marshall** lobbied on behalf of the Supreme Court that this treaty did not violate state's rights.

Currently offers protection to over 1000 species. Penalties include arrest and fines.

Established the **Migratory Bird Conservation Commission** to review and approve land acquisitions for waterfowl refuges.



Syracuse-born,
ESF founder,
Catskill and
Adirondack Parks

*Since 1934, the sale of
federal duck stamps to
hunters have generated
nearly \$1 billion for
wetlands conservation.*

Aldo Leopold

In the 1930s he saw that wildlife was disappearing. He began asking questions about how to manage animals. Wrote Game Management which became the first step toward wildlife management. In the 1930s he saw that wildlife was disappearing. He began asking questions about how to manage animals. Wrote Game Management which became the first step toward wildlife management.

Era of Game Management Aldo Leopold

By the early 20th century, considerable wildlife conservation infrastructure was in place

In 1920s but emphasis on **restrictive game laws** was insufficient in itself to stem wildlife's decline.

Aldo Leopold proposed a program of restoration to augment conservation's legal framework.

They called for a **wildlife management profession** with trained biologists, stable, equitable funding to enable their work and university programs to train them.

Within 10 years:



Aldo Leopold (1887-48)

- **Game management curricula** established, including **Cooperative Wildlife Research Units**,
- the formation of **The Wildlife Society**,
- **Pittman-Robertson Wildlife Restoration Act** (1937) - excise on guns and ammunition to fund state wildlife agencies.
- **Duck Stamp Acts** - to fund MBPA

19 / 32

Aldo Leopold: Land Ethic

The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land. This sounds simple: do we not already sing our love for and obligation to the land of the free and the home of the brave? Yes, but just what and whom do we love? Certainly not the soil, which we are sending helter-skelter down river. Certainly not the waters, which we assume have no function except to turn turbines, float barges, and carry off sewage. Certainly not the plants, of which we exterminate whole communities without batting an eye. Certainly not the animals, of which we have already extirpated many of the largest and most beautiful species. A land ethic of course cannot prevent the alteration, management, and use of these 'resources,' but it does affirm their right to continued existence, and, at least in spots, their continued existence in a natural state. In short, a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such.

Sand County Almanac - 1949

Worth comparing with many Indigenous approaches and ethos ... e.g.
Haudenosaunee Thanksgiving Address.

20 / 32

Era of Environmentalism

A general move to federalize environmental law because of a "race to the bottom" by states

Legislation

- Clean Air Act - 1970
- Clean Water Act - 1972, 1977, 1987
- National Environmental Policy Act - 1970
- Marine Mammal Protection Act - 1972
- Endangered Species Act - 1973
- Environmental Protection Agency - created in 1970's to make sense of all of the above.



Rachel Carson (1907-1964)

Silent Spring (1962)

21 / 32

The Seven Tenets of the North American Model of Conservation

1. Wildlife is a public resource
2. Markets for game are eliminated
3. Allocation of wildlife by law
4. Wildlife can only be killed for a legitimate purpose.
5. Wildlife species are considered an international resource.
6. Science is the proper tool for discharge of wildlife policy.
7. The democracy of hunting

22 / 32

1. Wildlife resources are a public trust.

“By the law of nature these things are common to all mankind - the air, running water, the sea, and consequently the shore of the sea. No one, therefore, is forbidden to approach the seashore, provided that he respects habitations, monuments, and the buildings, which are not, like the sea, subject only to the law of nations.” (Roman Law)

How does that harmonize with the supreme role of private property rights in the U.S.?

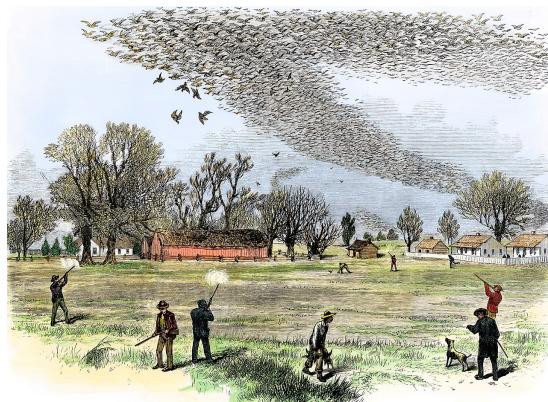
23 / 32

2. Markets for Game are eliminated

It has been held a **principle** that markets for game and non-game wildlife are unacceptable because they privatize a common resource and lead to declines.

Exceptions made for:

- fur-bearers
- some meat
- **ALL FISH**



Passenger Pigeon shoot ... from black skies to extinction

Question: Why can I buy kangaroo meat in the supermarket in Australia?

24 / 32

3. Allocation of Wildlife is by Law

Wildlife is allocated to the public by law, as opposed to market principles, land ownership, or other status.

Democratic processes and public input into law-making help ensure access is equitable.

Game laws, game agencies, and game commissions established by states in the late-19th and early 20th centuries focused primarily on eliminating commercial uses of wildlife (e.g., birds and the millinery trade) and on regulating numbers of game legally killed by sportsmen.

In 1897, the New York State Assembly passed the Adirondack Deer Law (sponsored by assemblymen who were **Boone and Crockett Club members**) that outlawed jacklighting deer at night and shooting deer after using hounds to drive them into deep water. Most notable about this law was that shooting deer in water was outlawed because of potential deleterious effects on the deer population, and jacklighting (e.g., spotlighting) was banned because it was **unsportsmanlike** (these laws remain intact today).

25 / 32

4. Wildlife Can Be Killed Only for a Legitimate Purpose

What is this!?

- does so primarily for the pursuit or chase;
- affords game a “sporting” chance (fair chase);
- seeks knowledge of nature and the habits of animals;
- derives no financial profit from game killed;
- will inflict no unnecessary pain or suffering on game; and
- will not waste any game that is killed.

How does or doesn't this overlap with traditional or subsistence use?

- How do longstanding predator removal or control programs fit within this context?
- How precisely evaluated are the concerns over property protection, and how well justified should such interventions be?
- Are hunters who secure only the skin, head, antlers, or horns and discard the meat consistent with our understanding of the Model's history and intent?

26 / 32

5. Wildlife Is An International Resource

- Marine Mammal Protection Act
- Migratory Bird Treaty

Must be international. Hard to argue with.

27 / 32

6. Science Is the Proper Tool to Discharge Wildlife Policy

The scientific mandate has been reinforced by the writings of Aldo Leopold and embedded within **The Wildlife Society's** code of ethics:

TWS members “recognize research and scientific management of wildlife and its environments as primary goals ...”

Eventual synthesis with Human studies

“One of the anomalies of modern ecology is the creation of two groups, each of which seems barely aware of the existence of the other. The one studies the human community, almost as if it were a separate entity, and calls its findings sociology, economics and history. The other studies the plant and animal community and comfortably relegates the hodge-podge of politics to the liberal arts. The inevitable fusion of these two lines of thought will, perhaps, constitute the outstanding advance of this century.”

Aldo Leopold

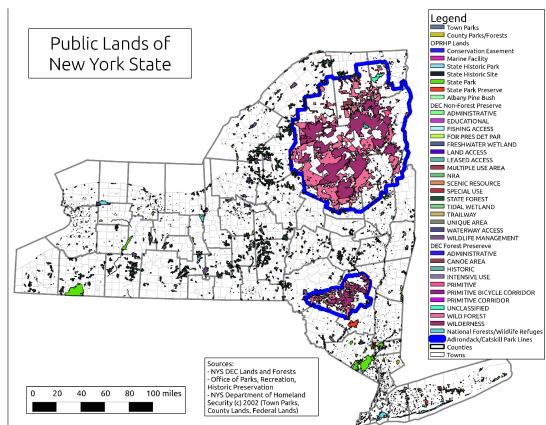
28 / 32

7. Democracy of Hunting Is Standard

Accessible to all.

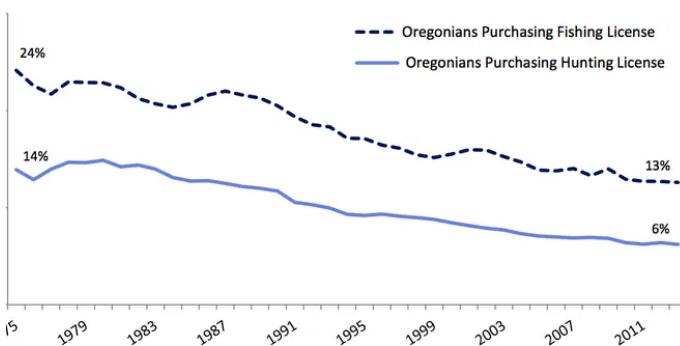
But is it?

In practice, the best hunting is often on private lands, but property laws are **very strong**.



29 / 32

Economic realities.



Oregon Dep't of Fish and Wildlife

Hunting as an activity is decreasing in popularity, across North America

Non-extractive **outdoor recreational activities** are increasing. About \$374 billion, of which only \$15 billion are hunting / fishing / trapping (& \$30 billion is R.V.'s!) See [this link](#)

Should they contribute to public conservation & management funds?



Currently, most public **recreation funding** entirely reliant on appropriations, such as the *Land and Water Conservation Fund* - \$900 million of permanent funding (mainly taxes on oil and gas).

30 / 32

Recovering America's Wildlife Act

- Provide \$1.3 billion in dedicated funding annually for the implementation of state fish and wildlife agencies' wildlife action plans.
- Provide \$97.5 million in dedicated funding annually for tribal agencies to work on at-risk species recovery.
- Allot 10% of dedicated annual funds towards the implementation of a competitive grants program aimed at fostering regional cooperation among states.
- Leverage funds from state agencies, universities, and non-governmental organizations to boost the power of federal conservation spending.
- Provide greater regulatory certainty for industry and private partners by conserving species and avoiding the need to list them under the Endangered Species Act.
- Empower wildlife professionals to hold the nation's wildlife in the public trust for generations to come by providing state and tribal agencies with the flexibility to conserve populations in an effective and cost-efficient manner.

31 / 32

What's happening next ...

when	what	who
Tues, Oct. 25	North American Model - origins & critiques	me
Thurs, Oct. 27	Hunting & wildlife ecology	Nate Wehr, MSU/ESF
Tues, Nov 1	Haudenaseaunee perspective	Neil Patterson, CNPE/ESF
Thurs, Nov 3	Indigenous co-management in Canadian North	Aimee Guile and Laura Behnart
Tues, Nov 8	Recovery of Galápagos tortoises	Dr. James Gill, ESF
Thurs, Nov 10	Wildfowl ecology & management	Dr. Mike Schummer & Riley Stedman, ESF
Tues, Nov 15	Exam #2	
Thurs, Nov 17	Furbearer management in NYS	Tim Pyczynski, NY-DEC
THANKSGIVING BREAK		