**Birds**

As above OTs

† grassland & low shrub types > forest spp.; but thu & forest, l subv. le AF

Interior forest specialists † generalists

Crake, Athene, Cardi, Redstart, Black-throated Finch

Small woodland islands

350 pairs oct. 1994

2005 475 broody pps

MA has largest broody popp on Atlantic Coast

1998

Woodcock

3.4m days hunting annually, 1.1m killed among top 10 migrating game animals annually

Among earliest neasters April-May

2.4% of 1968-74 in Neast

Am Woodcock My Flw LAFW - rmtour 1985 wood by now

† bluebird, V.S., GHS, Bobo, US, S5

Range - Cardinal, Tit, Mock -的家庭 1981 expansion to Md.-bird feeders

Possum, Vultures, Coyote

1955-85 recovery: loon, Cormorant, Great Egret, Semper, e.g., N. geese, Red-bellied

Woodpecker, Cardinal, Mockingbird, GBH, L.BH, Peewee, Turkey, Osprey, 

Willet, Swan, Raven, Geese, Vulture, Dove, Barn Owl


Willet, Oystercatcher, Herring & Great Black-backed Gulls

† bluebird, N. Harrier, Red Shouldered, PP, US, Sw. Owl, White, V.S., GHS, Bobo, N.H.

Mourning Dove † range + #3 feeders, food

Benefit from light to moderate grazing in such areas

GHS - Westover shift to later mowing 155-165 Pairs

Kantama 1993 1994 1995

MV Air 5 1 8 today?

V.S. was chiefly at MV Air 1952-54, no longer on island

Best sites - buses, airports, Elizabeth Islands
Gross 1928 State Forest - many bluebirds, tree swallows, brown thrashers, song + field sparrows, prairie warblers, bob white + Hill

Spp increasing

20th C
Mocking bird (Peabody 1839-rare), turkey vulture, turkey (natp.)

MAS 2013: B-H Cowbird, Bluebird, Bobo

Coopers Hawk - ate poulty, relentlessly shot, then DDT; recolonized MV mid-late 1990s

Indigo buntings - widespread + strong MA; just occuring on MV. Allen Keith-divide late spring getting easier. Also like oak-timber woods.

Tufted titmouse - don't like noisy water, so as TW/sewers didn't get to MV until 1977-80, uncommon

19th C
UpIS, SS, VS, GHS, EM, Bo - CT Valley most imp. as large + earliest in Ag

MAS State of Birds - Decline with Ag - S-E Owl, EH, BobWh, VS, Barn Owl,

Am Keet, Cliff Sw, UpIS, H-Lark, Belt Sw, GHS, SongS, Barn Sw, RWB, ERing, SS + succ

Decline w/shrubs - N Harrier, Prairie Wark, Field Sp, E Tow, Br Thrasher,

Whipp, Wh-ThrS, Night Hawk, BobWh

Predators - skunk, coon, chipmunks

2011
Decliners-Spo

↓ Towhees, BobW, Br Thrash, ovenbirds, B-Tow, terns, BCNH, G H, SE, Pr,

Lost ML, UpIS, GHS, S-E Owl, N Harrier, Whipp, Blues, Bobo.

↑ Coopers Hawk - N cardinal, Mocking, Red-bellied Wood, Carolina Wren,

Tufted Tit, R-Bow Gros, Great egr, Turkey V

↑ w/ farm - Balf or, Scarlet tow, Gr-crowned fly, E Wood Preserve, red/or Vima

↓ ground hawks, grassland + succ habitats

SED + GHS once common SED no nest, GHS persist

Figures - Wildlife

Bernardos + F+M vs DeGraaf + Yamazaki  grassland birds

Deer graph; Grassland bird spp. graph; Map - changing abundance

Coyote map NA - Pre-European + modern; MA thru time

Grassland figure - Grass Pre-European + European

MAS declines - Meadowlark.

MA - Grassland bird habitat ranking - close by rank + type of site

Insects: ~6000 rare moths in MA in 50 barrens, coastal heaths, SPG

Faded gray geometrider, chain-dotted geometrider, imperial moth
2013 Native MAS

Coyote - habitat loss/fragmentation; non-native species, collisions

Ag - restoration + the development

Sp - lost with Ag lands + barns - S-E Owls, Hilaris, Bob, V.S., Barn Owl, Kestrel, Cliff Sw.,

UpIS, Horned lark, Blackbird, Cks, SS, Barn Sw, RW Wood, E Kingbird, Sau Sp

lost w Shrubland - Golden-winged warbler, W-E Vireo, Towhee, thrush, Prairie Warbler

↑ Ag spp - Turkey, bluebird, B-H Cow, Bobo

Graph

Mlark - Serious decline ↑ Ag - succ + develop; habitat quality, abundance increases

"fate of the R.M has always been closely tied to farming."

Graph

Brown thrasher - Shrubland - "thrasher" from "threash" - loss of shrubland; now

invasive ag., pests + crops, grazing cattle, my ↑ routes

Wood thrush = Swamp Angel - Colonists - for boughs. "seems like a vocal expression of the mystery of the universe, clothed in a melody so pure and ethereal that the soul is still bound to its earthly tenement..." "Swamp Plague" - MA 95,000
<table>
<thead>
<tr>
<th>Wildlife/Healt+</th>
<th>Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over wildlife of fowls - not abundant. Biggest A - increase openland so that, growth</td>
<td></td>
</tr>
<tr>
<td>Toperal app - bobwhite, quail, crow, roccelot (mound Nw. Hudson), birds, add openland app</td>
<td></td>
</tr>
<tr>
<td>to woodland as more varied than ever</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gray Fox</th>
<th>1840 trap in MA</th>
<th>Dr. Emmons</th>
</tr>
</thead>
</table>

| Turkey | Wood - 1634 NE Prospect - some have killed ten or a dozen in half a day, if they can be found towards an evening and watched when they peck, if one comes about ten or eleven of the clock he may shoot as often as he will |
|--------|----------------|-------------|

| PP | Higgonson Salem 1630 - Upon the 8th of March from after it was fair daylight until about eight of the clock in the forenoon, there blew over all the towns of our plantation see may flocks of doves, each flock containing, may thousands and so on that they obscured the light, that presently credit, if but the truth be written |
|-----|----------------|-------------|

<table>
<thead>
<tr>
<th>2013 State of Bird</th>
<th>Most blocks</th>
<th>Song sparrow, cat bird, robin, yellowthroat, R.W. blackbird, Chukar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biggest 1</td>
<td>Turkey, red-billed woodpecker, Carolina wren, bob; Cooper's hawk, bluebird, hum</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Kestrel, black duck, meadowlark, hen, thrush, purple finch, bobwhite, grey</td>
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</tr>
<tr>
<td>Large rye</td>
<td>Grassland + as birds, shrubland/woods, ground</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Wooded swamp breeders, forest breeders, river, lake, coastal spread</td>
<td></td>
</tr>
</tbody>
</table>
Cooper's hawk - ate chickens so relentless, shut; the DDT recolonized MV mid/late 1990s

Indigo bunting - common MA but just occurring on MV - Allen Keill due to late spring getting earlier. Also like oak-leafed woods

Tufted titmouse - don't like crossing water. As expanded N due to fields stripped MV 1997 - SG farm now common

Blue winged warbler ↑, chimney swift ↓

Camp Edwards/ MMR - GHS, VS, US
Bernardos Grassland Birds

UPLS, Boba, ML, Sauk, VS, GHS - each unique, specialized needs/habitat.

No long historical record. Pre-Eur? ~ mid-1800s.

150 ac. US - mixture short - tall grasses; VS - open sparse short; B/ML - mature fields w/ mesic of veg - SS - all ages

day

Bird of prairie - open grassland.
was occasional visitor in 1849-55.

old name upgraded to 1st record HDT - common breeder plains Eastham, Wells, Truro.

late 19th C, hunted prof, gunners - delicacy; 1875-90 44 shot ACH.

1871 Brewer - extirp Concord; 1881 formerly, abundant, rather rare; visitor not breeding some places; breeding others 1890s. Boule

MV

Boule 4 pair + nest w/ eggs MV; 1897 several pairs w/ nests; early 1900s.

1920s CTRY but declining statewide.

Hadley, a hotspot 1931-34.

1919 4-5 shot 1936 - Agawam Bouler Airport 23.

"It has partly dwindled because of abandonment of so many farms and

field. But the main cause was Judy gunning, which killed most of the


1930-40s. Ag, Hadley, Newburyport, MV, Ack 5 1950s. Newburyport, Ag, Ack. 1950s only on Katama on MV 1963 ceased to nest on plain. Whiting - Polish 83.


1985 - Boule 10 pair mid 80s depend on airport to - Logon. House, MV, Westerly.

1990 - 35-50 pairs total; listed endangered 1973 - 95% of 4 air bases: total.


GHS Heliport.


GHS - doing well at Mashawumptuck. Rose.

Soo.

1864, 1st historical Allen "breads. Abundantly in dry fields and pastures." Spectacular abundance CC, ACK, MV 1869-82.

Forbush 1907, "probably much more common than is generally believed, and is

patchy even at this season. Never conspicuous, and it is largely confined to the open fields.

Threatened

1920s common on MV.

Large colonies that appear/dis appear.
1990's more concentrated on airfields; uncommon at MV due to loss of Kutsam
1993 - rare to uncommon except Eliz., airports, isolated Ag fields & pasture
- 307 territorial males 1993 S2% at 12 airports/hab

1996 - threatened

US 1884 - common, abrad breed. Sandy fields & dry pasture

1890 - 150 on MV June 24

Ferris
1967

"The vesper sparrow is, next to the song sparrow, the most abundant around sparrow in MA. It is generally distributed wherever there are open fields and upland pastures..."

"most characteristics of rally, formlands, grasslands, or bare hill tops" Bagg & Eliot 1937

Acct severe decline 1950-60 @ MV decline since 1900 - only 4 pairs each year 1983-84 - gone MV. "migrants"

1995 100 pairs nesting MA

US 1884 common. Abundant summer resident Ipswich, MV, Essex Co

Ferris
1901

"Along river valleys, in upland meadows, fertile fields & pasture"

1960 - 50 MV

1970-5 67 sets 525 pairs/year. 1992 - most common grassland bird

EM 1864 - common Weather in AG; some would winter over

Common MV 1910-15. Severely winter 1917-18. MA coast entire winter, soon

"wiped out" - none near MV in 1918. 40 in Oct 1917 by Easter

1950s 15-40 in winter + 8 of 1950

1965 Cape - "clearly a species which had benn crippled from deforestation of the Cape, and drastically reduced by a series of severe winters and restriction of breeding area by the resurcating trees."
Bobo  Shot in 3 with black birds as he gestured for me - fortress
1950s large flock, MV but 1980 overall SE great decline
Still on of most abundant yet smallest value

Woodcock

What was the hunked plover? Piping plover, Killdeer plover

Upland Sandpiper

Although appropriate use of airfields & protected natural areas is important
for the future of grassland birds in the Northeast, farmland remains a varied
potential source of habitat for many of these species.

200+ 265 GHS MA 73% Ramapo & Dupre Co 155 Ups S 88%/1 51/4

MV Airport Improvement Program

MAS 2013 Support not gain Ag

OF site with US/GHS MVA & Katona train 74/16 Stewarts
Coastal Brook Trout - At 5' limit of anadromy; little gene flow among proximate pop's; little evidence for genetic introgression from stocked fish. One hybrid fish, so native could be source for anadromous restoration. Native range Hudson Bay to Georgia; can be anadromous wherever access to sea + cold water; have been anadromous north of NYC.

74 coastal MA streams - only 17 coastal brook trout pop's remaining - 1970's;
Current reproducing pop's - Tribes of Aet Ac, Buzz Bay, Nar Bay + one on LI

Also see

- Heavy stocking 1940's - 1960's - possible introgression
Examined 5 pop's - CC + LI Sankuit, Nashpee, Quassemit, Red Br
Species pressure - 29, 450 - 67,300 in SA, MABU. None since 1990's most 1950's

Genetic differentiation - due to enhanced drift from small pop's;
Restricted gene flow; lower GD in n Canada;
Consistent with reduced anadromy in S pop's; some do use the ocean; poorly understood;
Non-native fish
Recruiting stocking - headwater ponds where stay in cold deep water so can't reach streams;
Otherwise might expect introgression - bred in Sandwich to grow quickly in hatchery environment - are highly susceptible to anadromy.
Poor survival. Originates from W MA inland streams

Maintenance of genetic diversity in extant pop's is critical they show local adaptation; ↑ anadromy also important
Restoration to allow meta pop's of seasonally brook trout at S limit anadromy

WT - Old Mill Pond, Seth's Pt, Duarte Pt
OB - Upper Lagoon Pd
1955 letter to WT selecting for stoke - To support trout remove warm water fish. Problem with the series of ponds and warm water. Leave all overhauling vegetation - trees, shrubs etc. Plant willows in pasture along stream. Need to rotenone

1988 Printout of sampling sites - WT, GH, C, E, T

1988 Mullan Sea Run or Salter Brook Trout of Coastal Streams - Cape Cod

Larger than native brook trout as access to sea. Mashpee River believed to be one of last popns. Privately owned. But small pop'n and small fish.

Tested whether overstocking with others would force salters into anadromy.

One of finest brook trout streams as < 90°. Vast alewives.

Stocked marked trout 92,100 over 8 yrs

Coloration + body size separate salters: silvery w/ pearl white belly; lose

salters appeared in 10 days to 2 weeks. Hatchery fish became salters.

All only left after spawning the first time.

0.4% caught in different streams.

The overstocking hypothesis was refuted.

Estuarine areas more important than marine environment.

One study 64.5 days average in sea.

20% unmarked native; 67% hatchery that year; 13% carry-over from 1 yr.

Most live < 4 yrs. Salters were larger 9-14" vs 6-9".

Limits to trout - crawbent box pesticides; rotenone, DDT, stream alteration - cranberries, clams and warming (but winter herring). cell grass + size

Such exaggeration of former pop'n so decline set-in great.

Cape Cod Canal elimination of major FW drainage systems
Wild life

EBT EBT EBT
Mill Brook Stocking 1968 - 200; 1969 - 200; 1970 - 300; 1971 - 150; 1972 - 200 + 100
EBT EBT RT RT
1973 - 300; 1974 - 300; 1975 - 250; 1976 - 250; 1977 - 250 RT both yrs

So mix of Eastern Brook Trout, Brown Trout, Rainbow ± 6 - 9"


26 spp Streams + Ponds

individual reaches may be very limited - Blackwater was thin no

Steve Hurley, Will & Brook Trout Pop ins in Blackwater Brook, Fulling Mill Brook,
Mill Brook Chilmark, Mill Brook UT, Witch Brook, UT - Priamus
Pdl, Paint Mill Brook, Roaring Brook, Tiasquam

1988- most comprehensive survey

Stocking 2001 to 2014 - Duarte's Brook Trout - 3100/150; RT - 1405/1476/10
Tiger Trout 25/153; Old Mill BD - 1800/100; RT - 1605/209/1
TT - 30/158; Seth's BT 200/50/50; RT 1955/400/2800/15
TT - 20/93 Upper Lenoxon - BT 2900/300/; RT - 2060/200/225
TT 45/248

Rod + Gun Club stocked (Duarte's earlier)
Salmon

Times of great decline - eel, herring, shad

One little known survivor - brook trout - saltie - coastal

How did survive - not interbred

Survival - poorly knowing adapt - not died in

Not interbred.

Stocked fish poorly adapted to habitat - WTH, need for rapid growth

Brock to cold stretches - deep holes. Mill RI, upper reaches

Caught in large = immediate

Dams that prevent passage also prevent mixing

Pop in high genetic differentiation - local adaptation?

also drift

Impacts - land clearance + deforestation - siltation, flow change, warm water, pollutants incl. livestock

Then - crawshells, eels, pesticides, runoff (herbicides? pesticides)

Dams, channelization

Estuarine impacts
Fire - Timeline, map on plain
Controlled burns - all orgs.

Management + Historical A

Graham 1943: "The most practical wildlife management is accomplished through good land use."
"The wildlife characteristics of a successional stage, through which the forest must develop to reach the final type desired, should be recognized as fundamen-
tal and afforestation should not be made to perpetuate it in the face of a changing climate."

Don't cut forest patches for succ spp - dear woodcock
"In the past, use of the land changed so rapidly that an accurate appraisal of the kind of wildlife, let alone its quantity, was not possible. Today there is little point
in undertaking an inventory of potential wildlife occurrence with the land, for we
are in the process of readjusting our use of the land on a major scale.

Leopold: "[We] pay too little attention to the history of wildlife... we do not yet appreciate
how much historical evidence can be dug up, or how important it can be in
the appraisal of contemporary ecology."

\[Pynchon Springfield 47 houseboats of 8,772 beaver skins 1652-57\]
1658-74 6,480 beaver (decline); 718 muskrat; 415 moose; 279 elk, 92 fish
52 marten

\[F<2\] Constant change/adjustment - some spp have 10,000 yrs; others 10
\[
\text{dependence on landability to managed.}
\]

\[Drogo 1978\] "Before European settlement the Northeast was a mosaic of open old-growth
forests, shifting agriculture and fire-maintained grasslands and savannahs.
Following fur contact, disease decimated NA species and much of this
unsuitable habitat became wooded."

2.
4% MA residents hunt/fish license - pay most of budget.
Tom O'Shea DFW - "we're using timber harvesting machines to imitate some aspects of natural disturbances such as ice storms, windstorms, and insect infestations.

Hayfield mat from MAS Small & Large Pastures.
Wildlife Conservation - Bernardos

PeRs - beaver, fur - beaver, deer 1831-36 Plymouth Plantation 10,000 pine stoves

Audubon + Nuttall - 2 rgb bird recipes w/ description

First MA law - protect fish & two commissions 1866 (investigate barriers to

fish passage in CT & Memine)

MA

Set up fish farms for Smad (1867), Brook Trout (1868), At Solman (1890)

MA Commission of fish and game

1886 Game Commission - "to preserve and protect birds + mammals in like

manner as fish"

1855 1st MA non-game bird protection - TR + Grinnell

MA Anglers Assoc - 1873 - 1st Sportman's Club

1874 - National Sportman's Assoc - protect game & fish

1883 - Am Ornith Union - protect, against indiscriminate killing

Lacey Act - interstate shipment of wild birds + mammals + products

but few funds for enforcement; map of theft no law

1903 MA moved beyond game birds to protect woodpeckers & bitterns

1913 Weeks - McLean - gave most of migratory birds to Fed govt

(Hornaday, Grinnell etc.) - reorganized Migratory Bird Bill & States take upon

Hornaday - focused on killing alone - not habitat
Deer Clean-up

Nurtured Inquirer + Mirror  Rabbit fever hits Island  Aug 6 2001

Lyme described Europe c1915  1975 first treated Lyme CT  1991 - 9466 US

most common anthropod borne disease  From in NA 1500

Emerged due to greening of US  (I. ricinus  Peromyscus -- reservoir

All mammals + birds support larval nymphs

Hornaday -- killing deer -- reprehensible

862 hit annually on US highways

Deer 1 with Eur settlement + deforestation

MAS 2013 -- Bambi Plague  95,000 MA
National ban on DDT 1972

Gardiners Island - World's greatest concentrations 2800ppb / 2000m

MA - as low as 1 nesting pair

DDT of DOE peaked 1950s-60s

 Exclusive fish, snake, amphib, small mamals
Newspaper anecdotes

The Heath Hen's Journey to Extinction

1859 Dr. Fisher liberates ruffed grouse + quail; not GPC
1877 Foxes + raccoons introduced on MV as sport
1902 8 Western prairie chickens liberated—survivors of show. No later evidence found
Cabinet: Fire created its home: easy to shoot, bait or trap

MA 1831 spray off limits. 1842

Breeding Prairie Hen 6 pairs released 1842. "Rural Concord" skeptical of Breeder

Grinnell 1910: May have been first meal tasted at Plymouth Rock

1853

Elkan Lewis called it woodcock bird. 1854 no open and three pitch pine and sandhills

Grinnell 1910: Reserve should protect HW from a danger which has been of late years the

most importal element in reducing its numbers - the buck and fowd

Gruss 1928: Feb 1741 NY intro Act for preservation of HW and other game. Corwin 1853

1895 2 pairs GPC liberated 1907 large flock GPC Nauset 1895 to NJ?

1902 GPC released from Boston area after new snow on NY

"Not even an expert ornithologist can distinguish them in the field"

1921 migration 1903 + 1904 NY

Berries: cranberry, bearberry, Berraria, vietalbe, moos, gray; Acorn, gum

leaves, buds, insects
Figure Ideas

- To Chris Biedle's animation of houses, add forest and forest fragmentation, to indicate changing quality of habitat.
Wildlife Clean-Up 8-24-14

**Birds** with fragmentation, below ground; few shrubs; forest but few; forest; suburban; winter; general; chickadee, cardinal, robin, woodpecker, blue-throated green


Woodpecker - 8-10 days hunting annually; 3-7 km killed; early August April May; 2.4% annually 1968-92. We like oak-killed woods. Migratory - don't like salt water. Indigo bunting: just occurring on NV through to North. SGF 1997- house common

Expansive: Cardinal, titmice, meadowlark, pheasant, raccoon, Mourning Dove

Recovery: Iron, corn, rat, cattails, eagles, snowy, pigeon, GBH, IBA, Oyster Catcher, sea

Predators: Raccoon, coon, chipmunks

**Mesaf**

Grea 1985 - Bluebirds, tree swallows, brown thrashers, song + field sparrows, prairie warblers, bob white

**MAS 2013**

Booby Plague - 95,000 - MA

**Decliners**

Lead - MB, USS, GRW, SE owl, M Harris, Whip +

Groundnesters, GL, Sues: 1 Tower, Bobo, Er Thrush, auk, prairie warbler, whippoorwill, vireo.

2013 MAS change Ag quality also; intensive chemicals; file of M Lane has always been closely tied to farm. Farming

**Insects**

60% rare moths in MA in 50 Barrons, coastal heath. CPG Faded Lady, geometrid

**Pass Pigeon**

Higgonson Salem 16.30 "Upon the eighth of March from ten past one I was faire daylight until about nine, and the clock in the forme the time was five

And the sun shone so bright, so many trees of clover, each fletch containing many thousands and so many that thus obscured the light, that passeth credit, but the truth be written

A broad, range - Grassland, shrubland, ground nesting

**MAS 2012**

Range - wooded swamp breeders, forest breeders, rivers, lakes, ponds app. to 16 rang

Askins et al. "Although appropriate management of farmland and protected natural areas is important for the future of grassland app in the northwest, farmland resources offer great potential sources of habitat for these species. Provide: farmland, with economic incentives, to manage their land for conservation as well as annual production, could help sustain significant, piping, which preserve historically important rural landscapes."

2012
Wildlife Clean-up

Black Bear  MId-19th century, Breach arrow ref. But no mention from Plymouth County or Bradford, Winchendon. Then: 1842-10; low 1850-80

Turkey: 1600 190,000 in MA 1981-0: 1911-63 9 attempts to restore in SC. County; 1972-3 31 trapped in NY-Beavertown Forest; 1975-80, moved 550; 1979-8-12 K in 5 W Countys; 2012 15,000 1971 official state game bird

Beaver Kayak 1,650 Squid bag

Since Freeman/HDT: Dynamics: Skunks, eliminated; reintroduced; dew migration/winter, HK extinct; Osprey crashed + rebound; brook trout/shrub hydrangea; coyotes with packs; NE cottontail replaced; turkey; pheasants exploded etc.

Nadir

Skunks - bounty as real problem; then so uncommon missed Devena, 1888?

Dean 1939 14 sites stocked with quail; 13 with pheasants

Reintroduced: deer, skunk, mink, squirrel, cottontail, raccoon

NYS - large white owls in winter

Journal Young Man - Aug 13 1896 "Mr. Writing + McLean gunny, very good last"

Bacey Act 1900 - prohibited interstate traffic in wild game

Ehrenleiter 1941 Wildlife Hat Farms - original wildlife of forest not abundant. Biggest change - increase of pheasants, deers, grouse; bobwhite, quails, crow, cottontail, birds + woodland so YY diverse.

Skunks 1,300 on MV; tagged 120; 42 transm. 1-2 mi./day.
Ospreys History on MV - Downloaded WWW

DDT injecting 1940s Boston-NYC 1950-1200 to 100 pairs 1970s

Gus Ben David 1970-1980 kept track; godfather to 60-70 pairs
from 2 to 70 pairs

Gus chopped in 1990s - # chicks declined

1990 Bierregard picked up; visited all 114 nest poles
50 nests - 33 produced 54 young (0.8 young/nest minimum
to sustain a pop'n)

2003 70 pairs - 121 young -nest ever
2010 Beginning of baby boom 74 nesting + 12 additional
pairs housekeeping (don't lay eggs) + house-hunting (no nest)

No accurate records - 5-10 pairs 1900-1960. Most in old pines

1971 - 2 pairs one on 1974-75 pole acros Deep Bottom and
1 in dead pine Mint Meadows

Since 1971 127 nest poles - Exponential increase 1976-90

more than doubling every 5 yrs. Ave 1.8 young/breeding pair

1992 - Gus dramatic decline # young fledged - collapse of prey

1998-2007 58-67 breeding pairs

Early 70s fledged 3-4 young/nest but no ↑ breeding pairs.

Power crews had been removing nests from transformers
At first they watched & replaced transformers nests w/ higher poles
Then speculation poles. Now 40 unoccupied

Now fledglings will but no ↑ - unknown why. Food is fine;
young doing well. Empty poles. Territoriality

MV pop'n recovered much faster than others from DDT-residue why

Satellite telemetry, 77 total, 25 on MV, rest NH to SC
43 young tagged, 47 died hourly
Switched in 2011 to GPS telemetry — can follow daily movements
2012: GSM transmitter — via cell phone not satellite — some by minute.
2013: 7 w/ GSM 2 on MV
Adults can’t shake Fejo March; juveniles remain in SA another 15 mos. Some not near a cell tower in SA so invisible. 5 within 10-15 mi of all towers
Lost 618 juveniles
Killed by great horned owls or N geeshawks — most GHs
1995 1st transmitter used on Speyr; #3-4K per
Cell — 15,000 pta/mo. Now 5Gds, solar power:
Speed, direction, altitude. 2 teflon ribbons ever bird shoulders and 2 welt wings - stitched together.
Bands — up to 20,000. Most to SA & leave in August; fled juvenile Sept
3 wks later: juveniles spread extra year on wintering grounds.
Keys to Cuba — Hispaniola — SA: NA birds to valleys in Colombia;
travel to Argentina. Go further S travel separately
Satellite — only 12 locations/day
Tag males — female w/cage glued to nest; 8-9 wks except ½ hr. stinks;
Avg ±120 mi/day on migration 20-20 mph; don’t mix hts over land at night; do over water, can fly 50 hrs + 1000 mi.
Return to exact place each winter but may take different routes
Shift as diff fish supply shifts
Rise in pop — stagnant at ~60 w/120 poles
2007: ~125 sites had been used in 10 yrs; 119 poles set up,
6 old or inactive electric; 5 houses/sheds, chimneys; 4 trees; 1 boat + 1 HS light buoy 72 used 2007
Since 1998 nesting pairs very stable
3 week variation in nesting activity
26 pairs or sites have bred at least 1 yr w/ breeding birds
675 young.
A few pairs are most successful, 25 nest sites active every yr for 10 yrs; 424 young, 13 of 33 nests >50% of young;
19 nests are < 1 per yr - underachievers. Birds get better at raising
Stonewall Po/Couch Cottage 21

Cornell site - Alan Poulter
Still shot; especially around fish ponds.
Most GPS units drop off in 2-3 yrs.
Penelope MV to French Guiana - 2700 miles - 13 day
up to 160,000 miles over 15-20 yrs. Oldest 25 yrs
Osprey: hawks with unusual reversion in outer toe - allows two forward + two in reverse; barbed pads on feet
and fly with fish head first
Success 1/4 dives; average = 14 minutes.
Chicks emerge separate by up to 5 days; 3-5 day condomine
Fish 6-13 inches; only hawk exclusively live fish
Occasional snake, squirrel, solomons + 5-6' wide
Male brings material; female builds nest Can be 10-12' deep
Incubat 36-48 days Nest 50-55
Begin in Greatlake's pit - incongruous. Far from sea but near water. Close to Lagoon Rd. Success in recovery. Tolerance of people and commotion. Lack of full understanding on their distribution. Why then? Why are poles empty elsewhere? Why did the numbers level out?

**TN - Nashville**

19th C - Abundant - "gregarious" TN; Capt. Gardner - 300 nests in 1850s

Reintroduction young on E extremity of LI; Wilson 25 within 1/2 mile TN near Hick DE

Arrival coincides w/ arrival sample of fishy smel, herring - public tolerance as no threat to domestic animals;

MV 1900-60 5-10 pairs but no accurate records; nest in old pines

**DDT 1940s**

Boston-NYC 100 pairs from 1950-1950

MV 1971 - 2 pairs: One on 1969-70 pole Deep Bottom; 1 Mink Meadow - dead

Gus Ben David Early 70s 3-4/nest but no as power crews removing nests

From replacement to speculation Total 123 nest poles

1975-90 exponential - doubling + every 5 yrs; Ave 1.84 young/pair

MV pop'n recovered much faster than most

1970-72 650 2-4/70 pairs

1978 R. Bieregard 114 nest poles visited 50 nests 58-67 brooded pairs

2005

2010

74

Now ~ 40 poles unoccupied; Fledging well but no 1;

Food fine as young doing well

Territoriality? Mortality off island?
Osprey Status

1995 1st transmitters $3-4 yr 1 yr

2011 Switched to GPS telemetry — hourly

2012 GSM—cell phone not satellite — 2013 July GSM 2-MV
5-gms — speed, direction, altitude; solar power

2007 135 sites used over 10 yrs 5 electric (some abandoned); 5 houses/sheds/chimneys; 4 trees

Since 1998 — stable 96 poles/sites at least 1 yr w/ breeding
674 young 10+ 615 juveniles GH0 >> N goshawks

Some poles v. successful BS nests sites every 10 yrs
13 of 22 > 50% of young 19 nest < 1 yr

Birds better at raising old

Disease; cold; malnourished

Some have nested on ground.

Can make R in 2 days

Travelling mortality — fish ponds; shot

Penelope MV French Guiana 2700 mi 13 days 160,000 mi 15-20 yrs 18 mos. can fly 50 hrs 1000 mi.

Juveniles remain SA 18 mos. 15-20 yrs 18 mos. can fly 50 hrs 1000 mi.

8 leave mid August 5-7 juveniles Sept -3 wks later

Florida Keys to Cuba—Hispaniola—SA: NA birds to valley colombe few to Argentina; return to same place each winter; my so

1 different route. Over winter Venezuela, Cuba

Don't nec. return to MV

Belle—6 passage hundred mi W of Bermuda to Colombia and Brazil
General - Osprey

Hawks with unusual reversible toe - allows 2 forward/2 reverse
Barbed pads on foot; fly fish head first for aerodynamic
Success ~ 1/4 dives Avg 1 min 6-12” fish
Only hunt ~ exclusive live fish; occ. snake, squirrel, salamander
Female builds nest of material rock, twigs can be 3-6' 10-15’ long
36-42 days incubate Nest 50-55
♀ on nest ~ stay w/eggs glued to nest 8-9 wks except 1-2 hr shift
Diff fish app as change thru season

Figures
Privately Printed. MV.

Foreword - Roger Baldwin, Guy Emerson, E Hough, H. Hough, Wm Leich
Acknowledges Richard Poole"Editorial Work

Griscom - Sheep numbered 30-50,000
Porpoise Bel was cut from for buy scallops & ruined as discus pond
Tashmoo also opened
All islands were heavily forested - trees less 50 w/ brush then was
Familiar w/ Gordon Day's work

5.12.1916 WT fire - 7am at Edg by 11am 11-13,000 ac. burned

Wm Boushier 6.27.1890 see Hiken + census term colonies, drew all around
MV tallying birds, 56 spp. 325 Tawees, 400 Brown Thrashers,
only 200 Robins, most numerous he had seen.
Saw no Hiken

5.8.1891 - returned, told grey squirrel introduced, no native red squirrel,
woodchuck, chipmunk, deer
Saw Hiken

Francis Atthorpe Foster - elected to Nutlall Club 1892, moved to MV

Joseph Kilbride Jr - original member of Norfolk Bird Club MV fund
Club founded 1906

1941 - No Hiken taken over by Navy for bombing, Ralph Hornblow
place on Squib's Pond - emergency Coast Guard station with floating
targets in pond, used for Navy dive bombing practice.

1938-44 - brook over S Beach - many ponds salt ruining food for ducks
Pacna Pol - cut through for scallops

1944 - blow down Spruce grove at Roger Baldwin's place Chilmark
where Barn Owls roosted fall-winter

Many common summer NE birds - Lackins on coastal plain-HV
Some w/ transients

Flock sea birds as inside Nova Scotia-CL ACK

Mrs HBH - weekly avian column

Red Tails - Breeds sparingly but Fairbanks common until 1937
Cheappy, WT-East road

Osprey - Nest Lambert's Cove - 1952-54 w/ young; 4 nests 1954

Bobwhite - Common resident due to restocking

Kildeer - S Shore, MV airport
increasing in Sp. & Locoh

Am Golden Plover - was common in fall after soy & Plains was a noted sheepin,
on meadows with Black-bellied Plover

Woodcock - remarkably common resident - best Locoh in NE

Up! Plover - formerly common - still on Ed or Katama Plain

Whippoorwill - Common summer migrant

Crow - MV street rests - birds from cape rest on MV Fairbanks 1918
12 pairs nr

Wood Thrush - 1st 1930 new common. Since 1950 - sing in thick woods & CVT

Bobolink - rare spring, common fall transist. Sept - wideb in meadow.
E Meadowlark - formerly abundant, but with severe winters

Sav Sparrow - locally common summer resident

Grasshopper - formerly common summer resident, now local 10-K atom

Itealow - very rare; 1 pair on Hanseck meadows

Copy of Allan Keith's Christmas bird count from VG
100 spp.
Heath Hen

Alfred Gross 1928

Sandy scrub-oak plains. He and others don't mention five.

At this time it is still to predict the future of the Heath Hen but it is probable that under the present efficient methods of protection the birds will continue to exist for many years, although their numbers will fall in number but finally disappear.

Gather all info about vanishing race.

"There is, however, such a dearth of material concerning the Heath Hen during these early times that we know but little of the conditions under which it existed and we are unable to determine with any degree of accuracy its relative abundance and distribution prior to the nineteenth century."

ME - VA, 1722. Carolinas.

Chiefly on sandy scrub plains of MA, CT, L., NY, NJ, PA where large.

Wm. Brewster 1885 2 spp. of which pt. only MV.

AG - specimens only, located for MV + Nashawena.

"we have no proof that birds from other parts of the range were those of PA, were of this subspecies."

Wood - 6 in morning uncertain.

Some doubt about Carolinas + ME.

Belknap - rare in NH 1792

Nuthall/Winthrop - AG no comment.

But rare on mainland by 1800. Last MA specimen - Nov 1820

David Eddy to Audubon Dec 6, 1832 - on MV + Nashawena.

Nashawena thru 1855 or 1876.
Few accounts from CT except Nuttall 1873

Dr. Samuel Mitchell to Alexander Wilson Sept 19, 1810 - "inhabit chiefly the forest range.

Act for preservation of H' in introduced NY Feb 1791 by Cornelius Boyd

No H' h't before Apr 1st of Oct 95

An Act for the preservation of H' and other Game

Extracts in 1870:

PA - Common - Wilson 1832

1859- now v. rare

lingered NM & PA to 1869

Extinguished Eliz & 1880 excluding NY

"We cannot be positive because of conflicting and uncertain statements whether the Heath Hen was native to NY or introduced from the mainland after the coming of the white man."


Quotes Brewster 1890 on distribution: 120 birds - 200

American Ornithology

Hoyte 1901 - collected more specimens than anyone - "ranges covers all the wooded portions of the island and it prefers the more open portions to the wooded one.

Fox introduced to NY

1898 - 2 liberated pairs - GPC - probably interbred - Hoyte
Huge 1977. Mr. Forbes liberated large flock PC on Nantucket
none found - believed to have flown to MV. Several flocks
also taken to MV

George Field 1907 - 1908 PC from sportsman show in Boston,
liberated on MV

Not even an expert ornithologist can distinguish them in the field

NY: 1st reported 1708 +1785; NJ 1820; RI 1846

PC were introduced into Cape Cod 1877 + various easterly
states (New Jersey; N.J. 1820)

Every attempt a failure - not adaptable to new
conditions, food, cover, enemies + disease

"It is problematical, even if the HH be restored to large numbers on
MV, whether it can ever be successfully transplanted to the mainland."

Big bump 1918-19

Five towers on state forest - built the

BO + WO 4-10' tall, 50 < Z

Many bluebirds, tree swallows, brown thrashers, song + field sparrows

Prairie Warbler, Bobwhite

Berries - bearberry, cranberry, Atraphaxis, Berberis, Mitchella,
blueberry, Gay huckleberry. Accum - v. important 50 + trees at
Rumex leaves, buds, insects
"The Heath Hen"


From Emily Dickinson

Alexander Wilson painting "Pinned Grouse" - name for 20th.
Starts with Greater Prairie Chicken - 2 races of P.

HH - dry brushy habitat with low trees; 20+ blueberry bushes barren

grassy clearings and meadows.

NE to Carolinas \LT, NY, NJ, PA, CT, MA Stronghold.

Ground nesting though no one found a nest. June-Jul hatch suits

incubate;

Fire created its home - lighting, Indians, blueberry farmers

Linda Patridgeberry - called HH plum (?) Couldn't find it on HF.

Wm. Wood 1835 - kill 6 in morning.

Writers insist Pilgrims survived through first weeks on HH

Nutshell - servants etc.

So imparted bitterness; easy to kill on booming grounds

Indians covered holes with ashes - dust would blind them so could be clubbed

Straight flight easy to shoot, baited & trapped

1821 Z for $5; market replaced with GPA

1831 Spring off limits; towns could exempt themselves

Tisbory 1842 - early Dec hunt but no dogs; 1850 exempt - November; 1855

1855 MA - lifted regs; then reinstated

MV HH report 1879 - Dep. Game Ward John Howland - some shot every year

Charles Brown MV resident 1832 - few shipped to Boston thru 1841

C.E. Hoyt shot for collectors - sold 80 for $700

NH exterminated by 1792; CT Valley by just after 1812; 1812 gone from MA

LI by mid 1840s + US mainland ~1840

MV closed season 1870, 200 HH; 1876 < 100
1905 Howland wrote MA F+G Commission - warming of extinction
New year closed season 1st Oct.
1906 fire - MV - 80 birds hurt
1907 re-open 1600
1908 another 600 at barn & house; killed roughly 1000
1908 45-60
1909 2000
1910 300 1911 150 1912 300
1913 WM Day returned wounded 400
Deg planted 3000 pines - timber economy
1916 Forbush - Commissioner visited 800 on one day; 2000 total
the island
May 12 1916 - Fire from cigar butt 2 miles in 4 hrs.
13,000 ac - birds stayed on wet coast
heards of N Gooshawks
1917 WM Day quit sttv Popn Plumsted 176
Some captured to mainland - none bred 160 returned all died
1918 Allow Kenworth new spt.
Norman MacMillan movie;
Forbush - saw 21
1919 AK killed 85 hawks, 19 cats, 258 rats; 165 birds
1920 Swarmed 600
1921 EF counted 314; hard first; Nov 1 & Jan
1922 117 seen
1922 
1918

Forbush, E. The Heav'n Hen of Martha's Vineyard.

Eli - State ornithologist - MA

Starts w/ diagram of PChicken, 1885 - discovery that Mv HH was
different from PC. At that point eliminated from mainland + so
impossible to determine how far W it had gone.

NE + Middle States
Abounds, E of Appalachians and S to PA "in suitable habitats"

Photo of nesting site studied Flat plain - very one foot grass +
scrub with oat sprouts to six ft.

"Shrubby oats, low bushes + stunted pines," From fire tower on
plain.

Strange weird sound; wall of wind like;

"Like the trilling of the toads in a million pools, like the morning
chorus of bird song on a thousand hills, it is a vital, virile
expression of the fecundity of old Mother Earth." "It is a poem
of hope and joy, a forerunner of the pulchritude, vigorous life of
summer;"

"Here in the gray dawn a strange, weird sound fills the air. Its wails
and dies upon the ear, but never rises or falls, and becomes intermitted
or ceases only when the sun rises up the sky." It is not whistling
nor call; there is no other sound just like it in nature. One may imagin
it the wail of the wind spirit, but no man understands just what it is or how it is made. "Heard from a distance, born of a sea
wind, it swells to the fullness of a grand undertone."

Carries 2 miles

PC E form - smaller, ruddier or rustier;
1834. MA legislature to protect fowl - seabird. Bill for Protection of Heather on MV

Nest - mere hollow scratched in ground, under scrubby oaks & pines.
No one knows where HG range ends PC began.

Extirpation due to absence statutory protection + law enforcement.
MV preservation due to local pride + MA Commission Fisheries + Game Reservation 1907

1906 severe fire: May 2, 1907 = only 21; June 11, 1948 - 45-60
1916 - EH: 800; superintendant - 8000 William Day
Raging fire 1916 + goshawks; April 1917 -126, many males <50+
Few went to LI - died

Blind allowed them to walk beneath + around
Toot ~ 4 a.m. dance until 7 a.m. Toot occasionally thru day

EH thru with AC Bent April 25, 1917

Corn planted + scattered to attract them

Great detail on chase

No one knows how they actually couple + mate

Steal into shade at night; disappear with dawn; hide easily in stubble. But fly swiftly + flutter + soil like meadowlark - milk or more.

Flocks can spread across the landscape.

6-13 eggs. Young follow in hans. Never swim in or near water.

Captive birds will drink.

Roost-ground, shrubs + slight in trees

DeVries + Megapoleia - common when NYC + Albany stand

Nv Hall 1832 - Gov Winthrop species one so common "on the ancient ad
site of Boston that laboring people or servants stipulated with their employers
not to have the heath hay brought to their fields other than a few times it would

Prairie Hen - 1885 - 6 pairs freed between Belmont + Concord along Concord Avenue. Lived a few years

Heath Hen - Likely Wood's Heathcocke. May kill Heathcocke or Partridge 6 in a morning. Common.

Believes Norton describes HH as Pleasant - seldom shot though good meat, 40 in trea but roost on ground

Nuttall 1838 - Groes plains of NJ, brushy plains of LI, shrubby barrows Westford CT, + MV. Quotes Winthrop but then "If + Brewster says

If "laboring people" and "servants" were really ever surf'd with HH they the birds must have visited Cambridgely Shores of Buck Bay.

Eliza Cabot - one saw one in Newton and on Cape 1872

WB - surmises that rather numerous on ancient bushy side of Boston when founded + possible to Cape Ann largely extirminated by 1650. But at least on Cape early 1800s

De-extinction Editorial April 1933 officially extinct

V6 4-3-2014 Heath Hen revival. HBH 1933 There is no survivor, there is no future, there is no life to be recreated in this form again also passenger pigeon + mammoth DNA background

Revive & Restore - Stewart Brand + wife Ryan Phelp; Non-profit within Long

New Foundation: Susan Johnson Banta on MV; Peter & Gwen Norton HH genetics 10 yrs old. Use chickens. Surrogate prairie chicken pop'n.
Heath Hen


Ruffed grouse - sell in Boston as low as $.12½ a piece.

Pinnated grouse; Grouse, or Prairie Hen - much less common. Confined to dry, barren and bushy tracts of small extent in several places wholly or nearly exterminated. Still on groes plains of NJ, brushy plains of LI, shrubby barrens in Westford CT and NV, scrub oak & pine hills Pocono, PA

Lieut. Gov. Winthrop - quote

Jim MacDougall Essex County Ornithological Club www reports quote - attributes to Townsend.

Piruze Orxu Gagas Birdzilla

Not distinct spp but geographical races
Early mention but a dearth of material
Wood - into NE Mass, restricted to specific spots across E seaboard

No published account matches Nuttall

Chiefly on sand scrub oak plains, Easily trolled & killed soon after 1840 gone CT+MA mainland

Don't know for certain if native to MA

Brewster 1890 - 200 birds in careful survey entire island

Kentwood 1896 - <100
1928 - 600 ac. bought 1000 ac leased
$70/acre by State
50 birds

1915-16 increased to 10 NV except Gap Head's 2000 ac. to Wurm

Could flush 300 from clover + corn

May 12, 1916 five 20 mi² to <150

1920 many diseased + found dead. Fed near domestic turkeys

with blackhead

1925 low abb Fed, cut Bird Club NE - $2000 annually

1927 13 birds - 2 ?

1928 2 birds in fall one by Dec.

James Green farm

1930 Sept 15 near, run over on road in plain

Still alive Nov 15 fall 1931 disappear

1st time in history a bird studied down to last one

Nest on ground w/ leaves, grasses, twigs

Acorns, seeds, insects, buds, berries, bearberry

Scrub oak acorns - major staple + rationale for distribution

Easily shot - direct + laborious flight

Heath Hen Film 1918 once abundant SNH - NVA

Matthew Kemm Tufts grad student

Barnstorm ornithologist - steeply dipping curve 1920s - exponential decline - extinction

Cardeza - they kept them in wrong habitat - open areas/corn fields

2004 Pekora scream. Potential to introduce prairie chicken - divergent genetics either due to bottleneck or long separation. More isolated than current population.
George Bird Grinnell 1910 American Game Bird Shooting, 
Forest and Stream Publishing, NY

The Heath Hen - Before Prairie grouse discovered the pinnated grouse well known, may have been the first meal tasted at Plymouth Rock - prairie hen, prairie chicken, heath cooke, heath henne

"long abundant in MA" in open, brashy country around the seacoast; where it no doubt fed on acorns, berries, grass, insects.

"well known in New England in first quarter of the nineteenth century, but disappeared soon after that."

Old NE writers speak of it as common Wood Hen that is a husband and will be stirring before may tree a half a dozen in the morning"

Cites W.Brewster & Eliza Cobb 1838
May assume it was more or less abundant
C.S. Wesell of PA "frequently spoke of it as having occurred according to tradition in MD and DEL, on the shores of the Chesapeake and on peninsula of MD & VA" as late as 1832 (but N didn't see them)

Cites N. Hall and Gov Winthrop
1843 - Linsley - extinct in CT
1840 - Giraud - about extinct in LI but abundant in 1810

Audubon cites David Eckley Boston - Nashwauk only other island w/ HH; surprised not on Neshann
"the resident of MV...ought to feel proud of this bird and to do everything in their power to preserve it."

Dec. 1832 letter

E. Elegr. scare on MV - few wets residue - 3 people got ten broa of birds. Many killed by cats, owls, hawks, skunks. In Tisbury Plain - "being mostly covered with scrub oak of a uniform height & with occasional mossy hollows"

Early 1800s ornithol - did not separate the 2 spp - speculated if it as almost exterminated from its old range - Atlantic coast

Elisha Lewis "The American Sportsman" PA 1857

"The prairie hen was, no doubt, at one time widely disseminated over the whole country, more particularly, in those portions interspersed with dry, open plains surrounded by this shrubby or scrubby covered with trees. Birds are "very rare" "may almost be considered extinct in the Northern and Middle States" a few in Jersey plain & in PA - we believe always abundat in KY & PENN. + LA, Ill, IN

So numerous & contemptible in KY that few hunters would bother. As abhorrent as crows, destructive to crops farmers would employ their young negroes to drive them away "the negroes themselves preferring the coarsest food to this now much admired bird" - Prairie chickens now deserted MV, Eliz 12, NJ + KY

Called a woodland bird - but in open + thick PP + SO

<150-200 alive "more nearly extinct than the buffalo"
W Brewster - Ave. Forest & Stream visited 1885

most people on MV have heard of it.

frequently seen along road or “started in the depths of the woods”

long section on history excerpted.

Description of startled birds flying fast and low across plain and out of sight. Behavior with young sounds like grouse.

Stay in large flocks of 50-60.

Tried raising by hen. Only 1 born - killed instantly.

Mr J.E. Howard responsible for trying to save it.

Got Rep. Maybe to introduce bill to lease or buy H4 refuge or breeding center. 51,000 ac under protection.

Legislature approved commissioners to take such unimproved lands in MV - not exceeding 1000 ac to make fire stops for protection of fire. Should suffice to protect H4 from a clongor which has been of late years the most important element in reducing its number - the bush and forest fires.

Present land - sow crop of clover & grains, build fire stops, reforest, start systematic artificial reproduction + rearing,

$2,400 subscribed by sports clubs + individuals
Elisha Lewis 1851. Pinnated grouse or prairie hen.

So numerous were they a short time since in the arrow's of Kentucky... that few hunters would deign to waste powder and shot on them.

Descend E, W, Elizabeth is, N1 3, moved W

Audubon domesticated 60 by clipping their winds.

Like the diced situations; moisture from dew
Heath Hen

Most writings focus on its demise and the details since 1964 when H H reserve established. But high during and going extinct, last gasp on area gathered together. To understand the app look more broadly and back in time, this provides appreciate and better ability to restore.

Details vague; claims & exaggeration great, facts few. But intriguing.

Range = SE (Audubon: so abundant could hardly be given away) to NE

NH extant 1792; KY few 1837; CT Valley MA 1812; LI mid 1840s

US mainland 1850;

CT extant 1843 (Lossing) Nashawena only other island

MA 1831 - Porges

Forbush: Distinct app - only 1855 - MV only

1839 status MV - "the same causes which have removed the greater proportion will soon depopulate us all" they are said to "diminish fast"

1839 attributed to Gov. Winstead

Legend: Pilgrims survived first winter; Nutall - savages

1885-90 Z visits Wm Brewster via Grinnell - Wooded

1885 Forbush (1918) - 1st recog MV H H distinct from GPC and extant elsewhere so impossible to determine how far H H went

"shrubby oak, low bushes, stunted pines" - fire town explain

1922 officials extinct

Brewster - skeptical of Winstead quote; rather numerous on bushy side of Bestem where award & possible to Cape Ann. Law's entire history 1657; cape into early 1660s Eliza noted source in native too Cape in 1662
- Never saw it occ to Grinnell

NvHall 1832 much less common than ruffled grouse

Coneded to dry, barrow + bushy tracts of small extent
Still on grouse pror. of NJ, brush plain LI, shrub, barrow of
Weteford city MV SE Pine hills Porconew

Sandy 30 plains

Brewster 1890 ~200 birds MV

Kentwood 1896 < 100

1908 land bought 600 ac.  30 acorn major food dist
1915 % MV ac

Cardoza - wrong habitat

Grinnell 1910 "long abundant in MA" in open bushy country around

Coast when fed on acorns, berries, grass, insects

Dec 1832 letter from Eckley - scarce on MV - killed by cats,

owls, hawks, stumks - the plain "being mostly covered w/ 30 of uniform

"most nearly extinct than the buffalo"

Elisha Lewis 1857 PA Birds are "very rare... may almost be

considered extinct in the Northern and Middle States!

farmers, abundant KY, LA, IL, IN

% open + thick PP + CO

W Brewster frequently seen along road or "started in the depths of the woods"

have the climat situation

Forbush quote on eerie sound
Nuttall, Thos. 1786-1859 British
Botanist / Zoologist

A Manual of the Ornithology of the United States and Canada The Land Birds 1834

Pinnated Grouse

Confined to dry, barren and bushy tracts of small extent in several places wholly or nearly exterminated
Wooded thickets; small acorns of scrub oaks, dwarf oaks, berries

PINNATED GROUSE.

Spec Charact. — Partly crested, mottled; tail rather short, much rounded, formed of 18 nearly plain dusky feathers, tipped with whitish, primaries externally spotted with brownish white. — In the male the neck is furnished with wing-like appendages. — Female and young without the cervical tufts.

Choosing particular districts for residence, the Grouse, or Prairie-Hen, is consequently by far less common than the preceding species. Confined to dry, barren, and bushy tracts, of small extent, they are in several places now wholly or nearly exterminated. Along the Atlantic coast, they are still met with on the Grouse plains of New Jersey, on the Brushy plains of Long Island, in similar shrubby barrens in Westford, Connecticut, in the island of Martha's Vineyard on the south side of Massachusetts Bay; and formerly, as probably in many other tracts, according to the information which I have received from Lieut. Governor Winthrop, they were so common on the ancient bushy site of the city of Boston, that laboring people or servants stipulated with their employers not to have the Heath-Hen brought to table oftener than a few times in the week! According to Wilson, they are also still met with among the scrub-oak and pine-hills of Pocono, in Northampton county, Pennsylvania. They are also rather common throughout the barrens of Kentucky, and on the prairies of Indiana, and as far south as Nashville in Tennessee; but I believe, nowhere more abundant than on the plains of Missouri, whence they continue to the Rocky Mountains. Dislike of moisture, as with the Turkey, but principally the nature of their food, appears to influence them in the choice of their resort. The small acorns of the dwarf oaks, and various kinds of wild fruits, as strawberries, whortle-berries, and partridge berries, with occasional insects, abounding in these wooded thickets, appear to be the principal inducement to their residence; from which they rarely wander at any season, unless compelled by a failure of their usual food, and so become, notwithstanding the almost inaccessible nature of the ground, a sure prey to the greedy and exterminating hunter. In the Western States, where they appear as an abundant species, they are, at times, observed to traverse the plains and even cross extensive rivers in quest of the means of subsistence. In winter they likewise feed on buds as well as mast, sometimes swallowing leaves, and occasionally the buds of the pine. At times, if convenient, they have been known to visit the buck-wheat field, for their fare, or even devour the leaves of clover. In wintry storms they seek shelter by perching in the evergreens; but in spring and summer they often roost on the ground in company. They feed mostly in the morning and evening; and when they can stir abroad without material molestation, they often visit arable lands in the vicinity of their retreats. In the inclemency of winter, like the Quail, Jkjiey approach the barn, basking and perching on the fences, occasionally venturing to mix with the poultry in their repast; and are then often taken in traps.

The season for pairing is early in the spring, in March or April. At this time the behavior of the male becomes remarkable. Early in the morning he comes forth from his bushy roost, and struts about with a curving neck, raising his ruff, expanding his tail like a fan, and seeming to mimic the ostentation of the Turkey. He now seeks out or meets his rival, and several pairs at a time, as soon as they become visible through the dusky dawn, are
seen preparing for combat. Previously to this rencontre, the male swelling out his throat, utters what is called a
tooting, a ventriloqual, humming call on the female, three times repeated, and, though uttered in so low a key, it
may yet be heard 3 or 4 miles in a still morning. About the close of March in the plains of Missouri, we heard
this species of Grouse tooting or humming in all directions, so that at a distance the sound might be taken
almost for the grunting of the Bison, or the loud croak of the bullfrog. While uttering his vehement call, the
male expands his neck pouches to such a magnitude as almost to conceal his head, and blowing, utters a low
drumming bellow like the sound of 'k'-tom-boo, 'k'-tom-boo, once or twice repeated, after which is heard a sort
of guttural squeaking crow or koak, kdak, koak. In the intervals of feeding we sometimes hear the male also
cackling, or as it were crowing like 'ko ko ko ko, kooh kooh. While engaged in fighting with each other, the
males are heard to utter a rapid, petulant cackle, something in sound like excessive laughter. The tooting is
heard from before day-break till 8 or 9
o'clock in the morning. As they frequently assemble at these scratching-places, as they are called, ambuscades
of bushes are formed round them, and many are shot from these coverts.

The female carefully conceals her nest in some grassy tussuck on the ground, and is but seldom
discovered. The eggs are from 10 to 12; and of a plain brownish color. The young are protected and attended by
the female only, who broods them under her wings in the manner of the common fowl, and leads them to places
suitable for their food, sometimes venturing with her tender charge to glean along the public paths. When thus
surprised, the young dart into the neighboring bushes, and there sculk for safety, while the wily parent beguiles
the spectator with her artful pretences of lameness. The affectionate parent and her brood thus keep together
throughout the whole season. By the aid of a dog they are easily hunted out, and are readily set, as they are not
usually inclined to take wing. In the prairies, however, they not unfrequently rise to the low boughs of trees, and
then, staring about without much alarm, they become an easy prey to the marksman.

The ordinary weight of a full grown bird is about three pounds, and they now sell, when they are to be
had, in New York and Boston, from 3 to 5 dollars the pair. They have been raised under the Common Hen, but
prove so vagrant as to hold out no prospect of domestication.

The Grouse, or Heath-Hen, as it was also formerly called by the first settlers, is about 19 inches long,
and 27 in alar extent. The winglike tufts on the sides of the neck, each consisting of 18 feathers, of unequal
length, are black, streaked with brown. Over the eye a warty bare space of an orange-color. Chin cream-color.
Above mottled transversely with black, pale rufous, and white. Tail short, much rounded, and plain dusky,
brownish-white at the tip, with one web of the middle feather sometimes mottled with black and pale brown.
Below pale brown and white. Feet dull yellow, the toes pectinated. Vent whitish. Iris reddish hazel. — The
female considerably smaller, and without the neck wings and yellow space over the eye.

COCK OF THE PLAINS.
(Tetrao urophasianus, Bonap. Am. Orn. iii. pl. 21. fig. 1. [female.]
Auu. Orn. Biog. 4. p. 503. pl. 371. T. (Cextrocercus) urophasianus,

Spec Charact. — Tail wedge-shaped, of 20 narrow, acuminated
feathers. — Male very dark. — Female and young mottled.

This large and beautiful species of Grouse, little inferior to the Turkey in size, and the American counterpart of
the Cock of the Woods, was first seen by Lewis and Clarke in the wild recesses within the central chains of the
Rocky Mountains, from whence they extend in accumulating numbers to the plains of the Columbia, and are
common throughout the Oregon Territory, as well as the neighboring province of California.

David R. Foster 978.724.3302
Director, Harvard Forest, Harvard University
324 N. Main Street Petersham, MA 01366
The *Pennated Grouse*, *Tetrao cupido*, was once very common in New England, but, being more shy than the preceding species, it has already been driven from all but a very few places, where it is comparatively free from intrusion. Audubon says, that when he first went to Kentucky, they were so abundant, that they could hardly be given away; now, hardly one can be found in the State, and they are, in like manner, fast disappearing from all the settled parts of the west. In Massachusetts, laws have been enacted to preserve the heath-hen, as it is commonly called; but it is impossible to withstand the operation of the law of nature by legislative enactments, and the same causes which have removed the greater proportion will soon deprive us of all. The better way is to try the experiment of domestication; the bird is easily tamed, and breeds in confinement. Some which Audubon kept for the purpose, soon became familiar, and would eat from the hand as readily as common fowls. Unfortunately, they became so destructive to the vegetables of the garden, that he was obliged to have them killed; but the experiment proceeded far enough to show, that neither the natural wildness of the bird, nor the want of proper food, would prevent their being reared by any one who is willing to take the trouble.

The grouse feeds on berries of various kinds, in their season, the acorns of dwarf oaks, and the buds and leaves of trees. In summer, they pick whortleberries and cranberries, and sometimes venture into a field to pick the leaves of clover. It is said, that, sometimes in winter, when they are hard pressed with hunger, they will feed on the buds of the pine. They are also known, under these circumstances, to join the domestic poultry.

The *tooting*, for which these birds are remarkable, is produced by means of the air bags at the side. When these, resembling a small orange, are inflated, the bird lowers its head, opens its bill, and sends forth the air contained in these receptacles, in a succession of rolling notes, like those of a muffled drum. In parts of the country where the birds are become few and wild, this sound is seldom made after sun-rise, and sometimes the battles of the rival males are carried on in silence, and the *scratching grounds* carefully concealed.

The nest is built in May, with dry leaves and grasses, interwoven, and is carefully placed amidst the tall grass of a large tuft, where it is not often discovered. The eggs, from eight to twelve in number, resemble those of the preceding species, though somewhat larger in size. The female sits nearly three weeks, and as soon as the young are hatched, leads them away from the nest. When surprised, they conceal themselves, like young pheasants, and one may search for them in vain, though perhaps he is treading them under his feet. In autumn, the different families associate together, sometimes in very large parties. Their most dangerous enemies are the hawk, the skunk, and the greatest of all destroyers, man.

The only place where they are now found in Massachusetts, is in Martha's Vineyard, and one small island near it; and there, though pains are taken to protect them, they are said to diminish fast, the high price which they command in the market, being a strong temptation to shoot them. Cats, also, which
run wild in the island, do their part in the work of extermination. The wonder is, that with all their timidity, they have remained so long, but their patience and their attachment to their old haunts will be wearied out, and other means must be found to gratify the epicure’s taste, and the sportsman’s love of pleasure. The order of nature supplies such game, as a resource for the pioneers of civilization, while the process of clearing the soil goes on; till the earth is subdued, the deer, the birds, and the fish, supply means of sustaining life. But when agriculture, and the other arts of life, begin to be pursued with profit and success, these resources cease to be needed; the habits of the hunter are inconsistent with regular industry; and as the game would only serve to tempt men away from their cares and duties, the forests and streams are deserted, and their wild tenants go where there are other adventurers who need them. If the gallinaceous tribes can be preserved, it is by domestication, not by law. Experiments should be made for several years in succession, and if these fail, we must make up our minds to lose them.

Swift & Cleaveland 1903. 1823 – Reconsidered to except hunting of heath hen; $5 fine for Heath Hen – split with poor and complainant. 1842 – Law for preservation of grouse or heath hen be suspended in Tisbury to allow inhabitants to kill, take or sell from December 1-10 – without dogs.

November 14, 1842 – Warrant to prevent illegal hunting and shooters of heath hen first ten days in December.

Committee of vigilance to see that non-residents don’t trespass on town rights to shoot heath hens the first 10 days in December. Printed in *New Bedford Mercury and Weekly Register*.

**Heath Hen**


**Pinnated Grouse.**


Spec Charact. — Partly crested, mottled; tail rather short, much rounded, formed of 18 nearly plain dusky feathers, tipped with whitish, primaries externally spotted with brownish white. — In the male the neck is furnished with wing-like appendages. — Female and young without the cervical tufts.

Choosing particular districts for residence, the Grouse, or Prairie-Hen, is consequently by far less common than the preceding species. Confined to dry, barren, and bushy tracts, of small extent, they are in several places now wholly or nearly exterminated. Along the Atlantic coast, they are still met with on the Grouse plains of New Jersey, on the Brushy plains of Long Island, in similar shrubby barrens in Westford, Connecticut, in the island
of Martha's Vineyard on the south side of Massachusetts Bay; and formerly, as probably in many other tracts, according to the information which I have received from Lieut. Governor Winthrop, they were so common on the ancient bushy site of the city of Boston, that laboring people or servants stipulated with their employers not to have the Heath-Hen brought to table oftener than a few times in the week! According to Wilson, they are also still met with among the scrub-oak and pine-hills of Pocono, in Northampton county, Pennsylvania. They are also rather common throughout the barrens of Kentucky, and on the prairies of Indiana, and as far south as Nashville in Tennessee; but I believe, nowhere more abundant than on the plains of Missouri, whence they continue to the Rocky Mountains. Dislike of moisture, as with the Turkey, but principally the nature of their food, appears to influence them in the choice of their resort. The small acorns of the dwarf oaks, and various kinds of wild fruits, as strawberries, whortleberries, and partridge berries, with occasional insects, abounding in these wooded thickets, appear to be the principal inducement to their residence; from which they rarely wander at any season, unless compelled by a failure of their usual food, and so become, notwithstanding the almost inaccessible nature of the ground, a sure prey to the greedy and exterminating hunter. In the Western States, where they appear as an abundant species, they are, at times, observed to traverse the plains and even cross extensive rivers in quest of the means of subsistence. In winter they likewise feed on buds as well as mast, sometimes swallowing leaves, and occasionally the buds of the pine. At times, if convenient, they have been known to visit the buck-wheat field, for their fare, or even devour the leaves of clover. In wintry storms they seek shelter by perching in the evergreens; but in spring and summer they often roost on the ground in company. They feed mostly in the morning and evening; and when they can stir abroad without material molestation, they often visit arable lands in the vicinity of their retreats. In the inclemency of winter, like the Quail, they approach the barn, basking and perching on the fences, occasionally venturing to mix with the poultry in their repast; and are then often taken in traps.

The season for pairing is early in the spring, in March or April. At this time the behavior of the male becomes remarkable. Early in the morning he comes forth from his bushy roost, and struts about with a curving neck, raising his ruff, expanding his tail like a fan, and seeming to mimic the ostentation of the Turkey. He now seeks out or meets his rival, and several pairs at a time, as soon as they become visible through the dusky dawn, are seen preparing for combat. Previously to this rencontre, the male swelling out his throat, utters what is called a tooting, a ventriloqual, humming call on the female, three times repeated, and, though uttered in so low a key, it may yet be heard 3 or 4 miles in a still morning. About the close of March in the plains of Missouri, we heard this species of Grouse tooting or humming in all directions, so that at a distance the sound might be taken almost for the grunting of the Bison, or the loud croak of the bullfrog. While uttering his vehement call, the male expands his neck pouches to such a magnitude as almost to conceal his head, and blowing, utters a low drumming bellow like the sound of 'k'-tom-boo, 'k'-tom-boo, once or twice repeated, after which is heard a sort of guttural squeaking crow or koak, kdak, koak. In the intervals of feeding we sometimes hear the male also cackling, or as it were crowing like 'ko ko ko ko, kooh kooh. While engaged in fighting with each other, the males are heard to utter a rapid, petulant cackle, something in sound like excessive laughter. The tooting is heard from before day-break till 8 or 9
o'clock in the morning. As they frequently assemble at these scratching-places, as they are called, ambuscades of bushes are formed round them, and many are shot from these coverts.

The female carefully conceals her nest in some grassy tussuck on the ground, and is but seldom discovered. The eggs are from 10 to 12; and of a plain brownish color. The young are protected and attended by the female only, who broods them under her wings in the manner of the common fowl, and leads them to places suitable for their food, sometimes venturing with her tender charge to glean along the public paths. When thus surprised, the young dart into the neighboring bushes, and there sculk for safety, while the wily parent beguiles the spectator with her artful pretences of lameness. The affectionate parent and her brood thus keep together throughout the whole season. By the aid of a dog they are easily hunted out, and are readily set, as they are not usually inclined to take wing. In the prairies, however, they not unfrequently rise to the low boughs of trees, and then, staring about without much alarm, they become an easy prey to the marksman.

The ordinary weight of a full grown bird is about three pounds, and they now sell, when they are to be had, in New York and Boston, from 3 to 5 dollars the pair. They have been raised under the Common Hen, but prove so vagrant as to hold out no prospect of domestication.

The Grouse, or Heath-Hen, as it was also formerly called by the first settlers, is about 19 inches long, and 27 in alar extent. The winglike tufts on the sides of the neck, each consisting of 18 feathers, of unequal length, are black, streaked with brown. Over the eye a warty bare space of an orange-color. Chin cream-color. Above mottled transversely with black, pale rufous, and white. Tail short, much rounded, and plain dusky, brownish-white at the tip, with one web of the middle feather sometimes mottled with black and pale brown. Below pale brown and white. Feet dull yellow, the toes pectinated. Vent whitish. Iris reddish hazel. — The female considerably smaller, and without the neck wings and yellow space over the eye.

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Heath Hen
Not much had been written about the heath hen on Martha’s Vineyard until the year 1885, when Mr. William Brewster visited the island for the special purpose of studying the bird. He reported the results of this visit in the *Auk*, and in 1890 repeated the trip and gained additional information, which was printed in *Forest and Stream*. He said:

"Throughout Martha’s Vineyard, the heath hen (locally pronounced héth’n, as this grouse is universally called) is well known to almost every one. Even in such seaport towns as Cottage City and Edgartown, most of the people have at least heard of it, and in the thinly settled interior it is frequently seen in the roads or along the edges of the cover by the farmers, or started in the depths of the woods by the hounds of the rabbit and fox hunters.

"Its range extends, practically, over the entire wooded portion of the island, but the bird is not found regularly or at all numerous outside an area of about forty square miles. This area comprises most of the elevated central portions of the island, although it also touches the sea at not a few points on the north and south shores. In places it rolls into great rounded hills and long, irregular ridges, over which are scattered stretches of second-growth woods, often miles in extent, and composed chiefly of scarlet, black, white and post oaks, from fifteen to forty feet in height. Here and there, where the valleys spread out broad and level, are fields which were cleared by the early settlers more than a hundred years ago, and which still retain sufficient fertility to yield very good crops of English hay, corn, potatoes and other vegetables. Again, this undulating surface gives way to wide, level, sandy plains, covered with a growth of bear, chinquapin and post-oak scrub, from knee to waist high, so stiff and matted as to be almost impenetrable; or to rocky pastures, dotted with thickets of sweet fern, bayberry, huckleberry, dwarf sumac and other low-growing shrubs,

"Clear, rapid trout brooks wind their way to the sea through open meadows, or long, narrow swamps, wooded with red maples, black alders, high huckleberry bushes, andromeda and poison dogwood, and overrun with tangled skeins of green briars.

"At all seasons the heath hens live almost exclusively in the oak woods, where the acorns furnish them abundant food, although, like our ruffed grouse, they occasionally at early morning and just after sunset venture out a little way in the open to pick up scattered grains of corn or to pluck a few clover leaves, of which they are extremely fond. They also wander to some extent over the scrub-oak plains, especially when blueberries are ripe and abundant, In winter, during long-continued snows, they sometimes approach buildings, to feed upon the grain which the farmers throw out to them. A man living near West Tisbury told me that last winter a flock visited his barn at about the same hour each day. One cold, snowy morning he counted sixteen perched in a row on the top rail of a fence near the barnyard. It is unusual to see so many together now, the number in a covey rarely exceeding six or eight, but in former times packs containing from one to two hundred birds each were occasionally met with late in the autumn.

"Only one person of the many whom I questioned on the subject had ever seen a heath hen’s nest, It was in oak woods, among sprouts at the base of a large stump, and contained either twelve or thirteen eggs. The date, he thought, was about June 10. This seemed late, but I have a set of six eggs taken on the Vineyard July 24, 1885, and on July
19, 1890, I met a blueberry picker who only the day before had started a brood of six young, less than half grown. These facts prove that this bird is habitually a late breeder.

"The farmers about Tisbury say that in spring the male heath hen makes a booming or tooting noise. This, according to their descriptions, must resemble the love notes of the western pinnated grouse. About sunrise, on warm, still mornings in May, several birds may be sometimes heard at once, apparently answering one another.

"During my stay at Martha's Vineyard, I obtained as many estimates as possible of the number of heath hens which are believed to exist there at the present time. My most trustworthy informants were, creditably, averse to what was apparently mere idle guessing; but when I questioned them, first as to the extent of the region over which the birds ranged, and next as to how many on the average could be found in a square mile within this region, they answered readily enough, and even with some positiveness. As already stated, the total present range of the heath hen covers about forty square miles. The estimates of the average number of birds per mile varied from three to five, giving from 120 to 200 birds for the total number. These estimates, it should be stated, relate to the number of birds believed to have been left over from last winter. If these breed freely and at all successfully, there should be a total of fully 500, young and old together, at the beginning of the present autumn. When one considers the limited area to which these birds are confined, it is evident that within this area they must be reasonably abundant. I was assured that with the aid of a good dog it was not at all difficult to start twenty-five or thirty in a day, and on one occasion eight were killed by two guns. This, however, can be done only by those familiar with the country and the habits of the birds."

May 1906 (?) destructive fires – over most of breeding grounds- few birds reared
Oct 1906 – May 1907 - <100
December 1907 - 75

First protective law 1831 – closed season March 1 – September 1.
1837 – closed season for four years, extended for five more
But permitted towns to suspend law: Tisbury did suspend for ten days on a couple of occasions beginning 1842.
No real effort to enforce until 1905.

"The inhabitants of Martha's Vineyard felt a local pride in having there a bird found nowhere else in the world, but this local pride was not strong enough to protect the species."


PINNATED GROUSE.
Spec Charact. — Partly crested, mottled; tail rather short, much rounded, formed of 18 nearly plain dusky feathers, tipped with whitish, primaries externally spotted with brownish white. — In the male the neck is furnished with wing-like appendages. —
Female and young without the cervical tufts.

Choosing particular districts for residence, the Grouse, or Prairie-Hen, is consequently by far less common than the preceding species. Confining to dry, barren, and bushy tracts, of small extent, they are in several places now wholly or nearly exterminated. Along the Atlantic coast, they are still met with on the Grouse plains of New Jersey, on the Brushy plains of Long Island, in similar shrubby barrens in Westford, Connecticut, in the island of Martha's Vinyard on the south side of Massachusetts Bay; and formerly, as probably in many other tracts, according to the information which I have received from Lieut. Governor Winthrop, they were so common on the ancient bushy site of the city of Boston, that laboring people or servants stipulated with their employers not to have the Heath-Hen brought to table oftener than a few times in the week! According to Wilson, they are also still met with among the scrub-oak and pine-hills of Pocono, in Northampton county, Pennsylvania. They are also rather common throughout the barrens of Kentucky, and on the prairies of Indiana, and as far south as Nashville in Tennessee; but I believe, nowhere more abundant than on the plains of Missouri, whence they continue to the Rocky Mountains. Dislike of moisture, as with the Turkey, but principally the nature of their food, appears to influence them in the choice of their resort. The small acorns of the dwarf oaks, and various kinds of wild fruits, as strawberries, whortleberries, and partridge berries, with occasional insects, abounding in these wooded thickets, appear to be the principal inducement to their residence; from which they rarely wander at any season, unless compelled by a failure of their usual food, and so become, notwithstanding the almost inaccessible nature of the ground, a sure prey to the greedy and exterminating hunter. In the Western States, where they appear as an abundant species, they are, at times, observed to traverse the plains and even cross extensive rivers in quest of the means of subsistence. In winter they likewise feed on buds as well as mast, sometimes swallowing leaves, and occasionally the buds of the pine. At times, if convenient, they have been known to visit the buck-wheat field, for their fare, or even devour the leaves of clover. In wintry storms they seek shelter by perching in the evergreens; but in spring and summer they often roost on the ground in company. They feed mostly in the morning and evening; and when they can stir abroad without material molestation, they often visit arable lands in the vicinity of their retreats. In the inclemency of winter, like the Quail, they approach the barn, basking and perching on the fences, occasionally venturing to mix with the poultry in their repast; and are then often taken in traps.

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The Last of the Heath Hens

One heath hen still lives.—Waiting in the small cubicle which has served for several seasons as observation post in the field of James Green at West Tisbury, Dr. Alfred O. Gross, Thornton W. Burgess and others this week saw the last-survivor of the species go through the ritual of countless years. Out of the brush came the bird and exhibited the now empty formality, the tragic irony of its famous mating dance. Perhaps this is the last spring in which a heath hen will boom anywhere in the world.

We believe that time has taken the situation in hand, and revealed what in past years has been a subject of dispute. So long as hope could be held out that more heath hens existed, it was right that the hope should be kept in view; now it will be a person blind indeed to reality who can maintain that more than a single survivor of the species remains. The chance that so much as one other bird, besides the regular visitor in Green's field, still exists, is so slim as to claim small consideration.

Much has happened in a year. Although the actual number of birds seen has declined only from three to one, the possibility of additional groups or additional individuals has waned. It now appears that in recent years the actual number of birds seen has almost certainly constituted the entire surviving flock. And today only one remains.

Wild though it is, the last of the heath hen presents itself upon its ancestral booming place for inspection and we have the unparalleled, almost unbelievable situation, of the final individual of a once bountiful species being studied, photographed and described in its natural surroundings, its natural routines of life, so soon before its death.

For death awaits, perhaps tomorrow, perhaps a year from now. The extinction of the heath hen is plainly at hand. May it be delayed! Courage and luck to the lonely survivor, and when it comes may death be peaceful.

As for the scientists who have studied the heath hen and interested themselves in its protection, it must be said that the issue has justified the reports of Dr. Gross and those associated with him. Every effort is to be made to keep track of the last heath hen and when word comes, if it does, that the bird is dead, we charge ourselves to give him an obituary worthy of his epic and heroic end.

Leadership Against the Mosquitoes

Martha's Vineyard, thanks to the initiative and patient work of some summer residents, is taking the lead in this state in the matter of mosquito elimination. A bill is now before the legislature the purpose of which is to provide ways and means for cities and towns to develop mosquito control campaigns. Dr. A. W. Gilbert, state commissioner of agriculture, has espoused the bill because of its probable beneficial effect upon country districts where vacationing city people afford an important market for farm products. He points out that the country recreational possibilities in Massachusetts are just coming into a period of considerable development and that the absence of mosquitoes will play an important part in this development.
Last Heath Hen Booms in Vain for Vanished Mates

Believed Sole Survivor, He Is Observed and Photographed at Annual Census

State Reservation to Be Continued Till Only Bird of Kind in World Is Dead

A single male heath hen, almost certainly the sole survivor of its species in the whole world, showed itself this week to Dr. Alfred O. Gross and Thornton W. Burgess, here to make the annual heath hen census. The solitary bird appeared upon his and Allan Keniston’s ancestral booming ground on the West Tisbury farm of James Green and vainly postured and called for a mate which does not exist. Mr. Burgess, in the portable hut used as a blind for a study of the heath hen, took motion pictures of the last survivor.

In company with Allan Keniston, superintendent of the state reservation, Dr. Gross covered a great deal of ground where heath-hen have been seen in other years. Mr. Keniston has maintained a careful watch of the Island cover, making daily reports of his quest for living heath-hen. Whenever heath-hen were reported to have been seen he investigated thoroughly. In every case where birds have been found they have proved to be cuffed grouse, and not the pinnated grouse or heath-hen.

A year ago the census takers saw three birds. At that time, although heath-hen have been seen in other years, no estimate had been made of the number of birds. It is not clear why the birds have not been seen before now.

Former Estimates Too Hopeful

Dr. Gross, although reserving his conclusions for his official report to Director William C. Adams of the Massachusetts division of fisheries and game, has no further doubt that the total number of birds seen in recent years has been fairly close to the total number alive. It has been customary to make an estimate on the basis of the number actually seen, with the presumption that the birds seen might have missed some individuals.

DIES AT HOSPITAL

Charles F. Place First Came to Island 40 Years Ago

Charles F. Place, 77, died at the Martha’s Vineyard Hospital Saturday morning, March 30, following the effects of a stroke of the previous day. He had been in poor health for about five years.

Mr. Place was born in North Easton, Mass., and for the greater part of his life was engaged in shoe manufacturing. More than forty years ago he and his family came to the Vineyard for a summer, following that program until about twenty years ago, when the family established a permanent residence at 10 Clinton avenue, where they have since remained. Their residence was once the residence of President Grant when he visited the Island in 1874.

After coming to Oak Bluffs Mr. Place was employed by the Camp Meeting Association until he was incapacitated by his stroke. He was a member of the Methodist Church and earlier in life had been a member of the Independent Order of Odd Fellows, and of the Knights of Pythias. Throughout his career he was noted for his fidelity and conscientious performance of duty.

He is survived by his widow, Mrs. Velina W. Place; a son, Frederick B. Place, both of Oak Bluffs; and a daughter, Mrs. Elizabeth Macy, of Au Sable Forks, New York, and four grandchildren.

Services were held at his late residence, on Tuesday, at 1:45, the Rev. C. H. Van Natter officiating. Burial was at Oak Bluffs.

The funeral was held on Tuesday and 4:45 at his late residence at 10 Clinton avenue and was conducted by his pastor, Rev. Charles H. Van Natter. Interment was in the local cemetery. The bearers were J. W. Woodard, D. J. McBride, M. C. Hoyt, and H. T. Webb.

The casket was literally covered with beautiful flowers sent by organizations, friends and relatives.

Hurley Is Named Master in Chancery

Appointment as Special Justice of Dukes County District Court Automatically Vacated

Governor Frank G. Allen sent to the council the nomination of Francis X. Hurley as master in chancery, thus vacating the nomination previously made of Mr. Thurlow for special justice of the district court of Dukes County.

According to Boston despatches Mr. Hurley’s appointment as special justice was not confirmed because of criticisms on his past court experience and youth. Mr. Hurley’s

Vote $45,000 in 20 Minutes

Tisbury Settles 5 Articles in Jig Time—To Buy Pumper

$35,000 Addition for School Is Voted

Five articles, involving the appropriation or expenditure of more than $45,000, were disposed of in twenty minutes at the special town meeting in Tisbury on Tuesday night. This period included the reading of the warrant and the election of the moderator, which, was done by ballot.

Immediately following the adjournment of the town meeting, which voted to appropriate $35,000 for the new schoolhouse, the schoolhouse building committee went in executive session, and awarded the schoolhouse building contract to A. M. Lundberg of St. Louis, which firm was the lowest bidder.

About 150 voters were present, Herbert N. Hinckley was elected moderator without opposition and the reports of the committees appointed, at the annual town meeting to recommend fire apparatus and housing for the same were heard first.

To Buy 600 Gallon Pumpers

E. C. Burleigh read a detailed report of the recommendations for apparatus, which included in brief the purchase of one 500-gallon American-France pumper with 1200 feet of double-jacketed hose and other equipment enumerated in the report, also a Ford hose truck equipped to fight forest fires. The council voted the purchase of the recommended apparatus.

Raymon G. Paltz then made the report of the committee on housing of the apparatus. The committee did not recommend the building of a central fire house, mentioning among other reasons the risk of housing the town's entire equipment under one roof unless the building were fireproof, which the committee considered impractical.

The committee, therefore recommended the storing of the new pumper in the town hall, and the remaining equipment in garages. The committee also declined to recommend the employment of a permanent man on duty at the station, offering a guarantee by the board of fire engineers that the equipment would be at all times ready for use. These and a further recommendation regarding the inquiry as to the reduction of insurance have been reported. The new pumpers and equipment arrived the previous season.

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Henry Afternoon, in train New Bedford driving, face to face Brown a score, a successful one was aliv

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The day at the
State Reservation to Be Continued Till Only

Bird of Kind in World Is Dead

A single male heath hen, almost certainly the sole survivor of its species in the world, showed itself this week to Dr. Alfred O. Gross and Thornton W. Burgess, here to make the annual heath hen census. The solitary bird appeared upon its ancestral nesting ground on the West Tisbury farm of Joseph Burgess, who has frequently pointed and called for a mate which does not exist. Mr. Burgess, in the portable hut used as a blind for the study of the heath hen, too motion pictures of the last survivor.

In company with Allan Keniston, superintendent of the state reservation, Dr. Gross covered a great deal of ground where heath-hens have been seen in other years. Mr. Keniston has maintained a careful watch of the Island cover, making daily reports of his quest for living-heath-hen. When, eventually, the bird reported to have been seen he investigated thoroughly. In every case where birds have been found they have proved to be ruffed grouse, and not the pinnated grouse or heath hen.

This week the census takers saw three birds. At that time, although the case of the heath hen was consdered desperate, there was a sharp difference of opinion as to the number which might be believed to exist. Up to December 5 Mr. Keniston refused to keep track of two birds on the Green farm. Since that time only one has been seen, and the certainty that this alone survives has gained general acceptance.

Former Estimates Too Hopeful

Dr. Gross, although reserving his conclusions for his official report to Director William C. Adams of the Massachusetts division of fisheries and game, has no doubt that the number of birds seen in recent years has been fairly close to the total number alive. It has been customary to make an estimate on the basis of the number actually seen, with the supposition that the birds seen might fairly be considered as a part of the flock actually alive. In earlier years, when the birds were numerous, this method was probably accurate. More recently, with the heath-hen reduced to a small number, and the entire population of the Island carefully and repeatedly combed for a glimpse of some additional survivor, there probably have been few if any birds not accounted for. This is the more true since elimination of females has gradually increased with the possibility that birds might be sitting on their nests and hence could not be counted.

The reward of $100 offered to anyone who could guide the bird to a spot where there were as many as three heath-hens has not been claimed. Mr. Burgess, who was one

(Turn to Page Eight)

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in Tisbury on Tuesday night. This period included the reading of the warrant, which was brought by balloting. Immediately following the warrant meeting, which voted an additional $85,000 for the new schoolhouse, the school-building committee went in executive session, and then signed a contract to A. M. Lundberg of St. Louis, which firm was the lowest bidder.

About 150 voters were present. Herbert N. Hinckley was elected moderator without opposition and the report of the committee for the town was read. The committee recommended to the town for appropriation and the stang were heard first.

To Buy 500 Gallon Pumping

E. C. Burleigh read a detailed report of the recommendations for apparatus, which embodied in brief the purchase of one 500-gallon American-LaFrance pumping with 1200 ft. of double-jacketed hose and other equipment enumerated in the report. Also a Ford horse tank engine and foreground said that the cost of the recommended purchases would come well within the limits of the sum appropriated for the purpose. On a motion it was voted to authorize the selection agents to make the purchase of the equipment as recommended.

Raymon G. Paltz then made the report of the committee on housing of the apparatus. The committee did not recommend the building of a central fire house, mentioning among the reasons the risk of housing the town's entire equipment under one roof unless the building were fireproof, which the committee considered impractical at this time owing to the expense.

The committee therefore recommended the storing of the new pumping in the town hall and the remaining equipment in garages. The committee also declined to recommend the employment of a permanent man on duty at the station, offering the equipment to B. E. C. Byrnes for operation, with the advice that the equipment would at all times be ready for use. These and a further recommendation regarding an inquiry as to the reduction of insurance rates were acceded to by the council, without a word of discussion.

Article is Tabbed

Under article three, which called for action on the request that a sum of $600, appropriated for the promotion of baseball, be paid to the baseball club known as the Vineyard, consisting of Bertram Hoyle, Lamont Blackwell, and William R. Vincent, chairman of the board of selectmen, read from the acts of 1907 a special act which authorizes the town to raise and appropriate sum not to exceed $600 annually, to be used for the advancement of the town or promoting entertainments of a public nature. The sum of $500 has already been raised for advertising; it is said, and the money paid over to the Chamber of Commerce which has the handling of it, and the town therefore had no authority to raise more. On motion this

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LAST HEATH HEN
BOOMS IN VAIN FOR VANISHED MATES

(Continued from Page One)

of those to offer the reward, this week expressed his willingness to give the amount to anyone who could find a single additional bird, with the known survivor at the Green farm accounted for.

For several years there have been no heath hen on the state reservation and it has been taken for granted that they had moved away for some unknown reason. Dr. Gross and Mr. Burgess are now inclined to believe that the reservation birds became extinct and that they did not move to any other refuge. The lone heath hen at the Green farm, if this belief is correct, is probably the survivor of the great flock which has frequented that particular part of the plains from time immemorial, a flock described by Mr. Green as of considerable size as far back as he can remember. The heath hen, like other species, has an ingrained habit of returning to its ancestral mating ground in the spring; and it is likely that the heath hen on the Island have always been colonized and that the colony which alone represents the species today is the last to die out.

State Will Continue Protection

How long a period lies between the single surviving heath hen and the extinction of the species cannot be conjectured. Dr. Gross said this week that every effort will be made to protect the bird and to track it.

Mr. Adams has given his assurance that the state reservation can be maintained even after the bird can no longer be found, with Superintendent Keniston in charge. Perhaps the end of the heath hen will come soon; it may be delayed until another spring.

An unparalleled and singular experience of science is that of studying at close range the last specimen of a species about to become extinct, the surviving specimen continuing to live its normal life in the habitat of its ancestors. The last passenger pigeon died in captivity; presumably no one saw the last dodo die. The last heath hen, free and wild to the very end, enjoys its liberty and yet, following the action patterns of its species, presents itself to view and acts out its mating ritual under the very eyes of the greatest authorities upon its natural history and under the lens of a motion picture camera.

Dr. Gross said that nothing could be gained, in his opinion, by attempting to capture the last heath hen.

There are heath-hen skins, well-mounted, in many museums and science cannot protest by stopping in

SOME ONE, SOME DAY

By A. W. PEACH

(Copyright)

I RMA raced from the gate to the vine-clad porch where her invalid mother was busy with her knitting.

"Mother, what do you think? Uncle Ren did remember us. Here's a letter from his lawyers, saying that he left us $50,000. In cash, that the money had been forwarded to our local bank, and—well—now—"

Tlie mother laughed at the long sigh that followed the "now." "Now, Dark Eyes, I suppose you will want to be doing missionary work with it. Ron never liked us, but I guess he thought better of his family as he grew older. What are you going to do with it?"

Irma turned into her mother's twinkling eyes. "Well, with this and what father left us, I guess we won't worry any more; and then—and then—mother dear, I'm going to give Mrs. Jamieson enough to have Bobby operated on, and I'm going to buy that home for old Mr. and Mrs. Peebles, and—"

"Gracious, child, get your breath! I hope you will do happy things with what we don't need, and our needs are not luxurious. We—hère comes Del Stewart!" Her mother added, looking up the walk.

Irma went to meet him, a little of the happiness of her plans going from her face. Stewart was a persistent suitor almost to the point of being annoying; but he was regarded in the village as a good-betted fellow, a girl, and the village had been unable to understand why Irma had not accepted him. As a matter of fact, she had been on the verge of doing so, but always the realization that she did not love him as she wanted to love some one some day held her back.

She told him the good news, but he did not seem in any sense overjoyed by the information. He guessed the reason. The son of the richest family in the village, he had made her realize what he could do for her and her mother. To dark moments that thought had tempted her—but only for moments.

The next week she proceeded to make a few dreams come true. Mr. Peebles, limping home from work, found the deed to his home waiting for him in his wife's trembling hands. The old people wept softly in each other's arms, and then slowly down the street together to the Barnes cottage. The little Jameson boy, his

ROUNDBOUT TISBURY

Thirteen baptisms took place at the Baptist church during the morning and evening Easter services. Six of those baptised included Mr. and Mrs. Albert O. Fischer and members of their family.

The Needlework Guild, Federated Church of Edgartown, will give a play, "When Smith Stepped Out", at the Edgartown Gym, April 17 at 8:30 p.m. advtm26-3

Dr. and Mrs. Edwin S. Thompson arrived home for the summer last Monday and went at once to their place at Menemsha-by-the-Sea. The doctor is looking fine.

Captain and Mrs. George Moir also arrived from Southern Pines on Monday, with Raymond Baptiste, who detoured on his way home from California to join them on the trip home.

State Will Continue Protection

TO ISLAND

(Continued)

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Unused to Fencing

Once more Manuel Bettencourt figures in the public eye through his folly, and this time he is credited with the gaining of pagastic fame. It appears that Manuel owns a very large rooster whose responsibilities as lord and master of the coop rest lightly upon him. In fact the rooster is prone to escape from the run and wander abroad to the discomfiture and irritation of his owner.

After having rounded up his rooster several times until his nerves were pretty well on edge Manuel started out with a small stick when the fowl next tried to roam, and Cornished the bird, attempted to catch it by making passes with the stick even as the fowl 'dove' over old Spain crosswise with his rapier the horns of the maddened bull.

But alas the rooster, unused to fencing, ducked beneath the stick just as it fell, and in an instant dropped to the ground, unconscious. Manuel bore the fowl home in deep grief. He was not sure that it was dead, but he felt quite convinced that the rooster would be useless for anything but display as hung game as he tenderly laid it in a shady spot.

But the fowl revived and is apparently well and strong enough to make no more attempts to leave its lawful harem and recognized domain. Which is why his friends all claim that "Manuel won by a knock out" and the statement is pretty apt at that.

Peebles, limping home from work, found the deed to his home waiting for him in his wife's trembling hands. The old people wept softly in each other's arms, and then went slowly down the street to the Raines cottage. The little Jameson boy, his pale face alight with hope that he was going to be made like other boys, went with his mother to the great city.

Then out of the clear sky came the words that left Irma almost fainting—"a letter from the western firm of lawyers, telling her to cease drawing on the $50,000, that a later had been discovered in which the money had been left to Mr. Starr, a friend of her uncle; that a representative would see her about the matter.

She was at her wit's end. "What shall I do? What shall I do?" was the bitter question she faced. She had spent the money for things that could not be returned. She might take the little money in her mother's name—and that would mean poverty for them.

In desperation she told Stewart. He smiled "Mary, Irene, and I'll take care of the whole thing," was his solution.

She looked at him with frightened eyes, and started to offer herself, for the gateway he mentioned seemed the only one. Just as his greedy eyes were growing triumphant, the doorbell rang and Irma had to go.

At the door she found a tall, clean-cut young man, and looked up into gray, pleasant eyes. She guessed who he was. "You are from Stetson & Stetson?" she asked fearfully.

He nodded. "Yes, I am here to explain the situation and arrange for the return of the money. It is very unfortunate."

Stewart was forgotten, as her mind in a whirl, Irma led the tall lawyer into the cottage living room and began the terrible explanation.

He listened quietly, then said, "I would like to see Mr. Peebles' home and the Jameson lad—in fact, just what you have done."

He came the next day and she told him what she had done. The day drew into a week. Evenings found him at a reading of that little circle of home life. Under the quiet friendliness of his ways Irma almost forgot the tragic import of his errand. Then came the evening when he announced his departure.

That night in the quiet of her room Irma saw with a soul's clear vision that in him she had found the same one she could love some day. But tomorrow he would come, tomorrow he would suggest some arrangement for the return of the money she had used. Very quietly she made her decision to marry Mr. Peebles.

The next afternoon the attorney came. He asked her to come to the Raines cottage. The statement was given by Warren Rainer of the New England Telephone & Telegraph Co., consisting of a showing of moving-plate films of the working process of the new system.

Refreshments were served.

Although he has not hung out his shingle, Francis X. Hurley, attorney at law, is now established in our midst, the first lawyer to make his headquarters in Vineyard Haven for these many years. Frank has more than a mere passing affection for the gentle islanders. He is a great lover of Oak Bluffs since he was a small boy, and also being a college classmate of one of the Island's athletic heroes, Bayes M. Norton.

Rev. Clifton Chase has gone to Brockton to attend the Methodist Conference. He left Tuesday to be gone about a week.

A new Dodge delivery truck has been acquired by Paul Bangs.

Frank Swift has joined the movement to "brighten the corner where he is" as another business is located in the middle of the block does not make a bit of difference, the boy is going the whole way. The whole inside of the place is to be redecorated and some upright showcases have been built in. Then the front will be remodeled. There is a possibility that the boy just might laugh at the distance his place is located from the business of his place.

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U. E. MAYHEW FOUGHT
LONG FDR HEATH HEN
Ex-Representative’s Interest in Birds Helped Establish
The State Reservation

Former Representative U. E. May
heath, of West Tisbury, rises once more
in the defense of the heath hen, which
he sought for back in 1907 when he
was the island representative to the
General Court.

Mr. Mayhew expresses his strong in-
terest in the birds and his desire that
everything possible may be done to
prevent their extinction. That this
feeling is not of recent origin is prob-
able well-known to those who remem-
ber his fight in the early days of the
state reservation in the year 1907.

It was on Jan. 1, 1907, that Mr.
Mayhew introduced a petition for tak-
ing over a tract of the plain land for a
heath hen reservation. According to
report, it was the result of work done by
other Vineyard men who realized that
the birds were growing scarce.

The fish and game committee
reported a bill in favor of the proposed
taking, which was adopted on March 12.
Mr. Mayhew was present, and after the
bill was referred to the committee on
the same day it was referred to the
committee on ways and means, as it carried
finances. Mr. Mayhew was a member of
this committee, which was headed by
the house chairman, Joseph W. Hich.

Opposed by Walker from start to
finish, the report of the ways and
means committee was a rejection,
which went to the house in May.

Three days later the matter of the
rejection came up on the floor of the
house for debate and it was then that
Mr. Mayhew moved that the bill be
applied for the report of the
committee on ways and means.

Although the vote was close the
motion was approved and took its third
reading a few days later without much
opposition. The bill was engrossed
on May 31, enacted on June 15, and
was signed by the governor on that
date, 1907.

It is thus seen that Mr. Mayhew’s
motion started the actual work of
state protection for the birds and his
interest in them has never waned.

North Tisbury

Mrs. Catherine Loomes of Dossen
Hill, Chatham, Mass., it is heard for
a few days, the guest of Mr. and Mrs.
W. L. Webb, Seven Gates Farm.

Mrs. Isabel Andrews has returned
from a visit at the mainland.

Miss Dorothy Barton went to her
home in Wakefield to spend the week
end and holiday, and was detained
several days by her health.

Mrs. Lewis A. Rogers has returned
from a visit of some length with rela-
tives in Vineyard Haven.

Miss Emma Sherman Daggett has
been attending a week’s vacation from
her school duties in Kennebunk, Me., at
home with her parents, Mr. and Mrs.
Obed S. Daggett, Cedar Tree Neck.

Mrs. Lewis A. Rogers has returned
home after an extended visit with her
mother, Mrs. Mary O. Dow of Vine-
yard Haven. She was entertained
by several friends and relatives while
there, reporting the best visit ever.

What is the origin of these syllables,
Do, Re, Mi, Fa, So, La, Si, as names for
the seven notes of the musical
scale? In histories of music their
invention or discovery is attributed to
Guido d’Arezzo or Arestus, a Bene-
dictine monk who lived near Ravenna,
Italy, in the first half of the Eleventh
century. A monk of his fellow
in the Poppa monastery he was
credited with the teaching of the
language of music which gave imme-
diate results in singing that before
him could scarcely be attained in ten

Guido went to Rome to teach Pope
John to sing and he met with com-
plete success by means of his new
syllables. After but two years the
pope was able to find the tone of an
anthem and to sing it. Guido called
his system solmisation; it consisted
in part of the use of the new well-known
syllables.

But a deeper search into the history

FREE

For every FIVE GALLONS of GAS you buy MON.
DAY, APRIL 25, we will give ONE CAN of AUTO
SOAP.

Osborn’s Service Station
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Quickly
from arms, under arms and
legs use

Primrose House
DEPILATORY POWDER
which is pleasant in odor and
acts within five minutes.

Price $1.00 a bottle

At Our Toilet Goods Department
Mrs. L. E. Dame Norton
Circuit Avenue, Oak Bluffs

AUTO LAUNDRY

road-ease and
road-read-

comfort

W. S. NEVIN, Edgartown
The general interest of the town continued to Edgartown a constant procession taken street to the Yacht ere she is berthed. The tour trip from Dan- in twenty hours, and of ten miles an hour easily the fastest fleet. Hooner is a beautiful nighthawk and even more a lover of salting things. Shows at once in her which is surprisingly harbor, partly because and wide stern with a rangle. By these same does not sacrifice any the better speed, what more hold room T. Hillman. Her fuel 3000 gallons. There hold for thirty tons of can pack down 55,000. A B. is seventy-three and sixteen feet, eight beam. She draws eight dimensions make her a than the 1810 and than the other schooners, about the same ton- arie, recently sunk on eighty-four feet overall feet beam. It all burning and self re: to New Bedford on in Norton had the en-

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LONE HEATH HEN'S 1939
SPIRIT BROKEN, IS BELIEF OF DR. GROSS

The bird will be allowed to live without disturbance.

From the Hand of Man

In his report of the heath hen census for 1929, Dr. Alfred O. Gross gives a striking picture of the last survivor of the species as he was observed on James Green’s farm at West Tisbury, early this month. Although the report is nominally a census, in reality it is simply a description of the last remaining heath hen and a report on the bird’s condition and prospects. Dr. Gross writes:

The annual heath hen census was made March 28- April 4 under the auspices of the Massachusetts Division of Fisheries and Game.

During the year 1928 the number of heath hen dwindled from three to one and the last male bird was alive at the time of the annual census taken March 30 to April 3, 1929. Though suggestions have been made to the State Department of Conservation to collect and preserve this last bird for science, it has been allowed to live its normal life among the scrub oaks on the sandy plains of Martha’s Vineyard Island. It was the common expectation at the time of the last census that this bird would step out of existence before another bird of the species could be discovered. Today another race of birds would be added to that endless array of extinct forms. It is truly remarkable that this lone bird, subject to all the vicissitudes of the weather, to disease, and to natural enemies, has been able to live in solitude for such a long time.

Gives Credit to James Green

The bird continued to visit the farm of James Green, West Tisbury, during the early spring of 1929 and was reported as late as May 11. After that date, as was the custom of the heath hen in the past, this individual disappeared among the dense scrub oaks to live in seclusion during the summer months. In October, after going through the ordeal of molting, it again appeared at the Green farm and announced to the world that it was still alive. It was seen at irregular intervals during the winter and since.

Born Place was Chilmark

William J. Rotch was born in Chilmark, the son of John D. Rotch and Sarah Titcomb-Rotch. He remodeled West Tisbury while he was still a small boy and lived his entire life in that town.

His school days were of brief duration, each term most enter business and carried on for many years the store business now owned by George G. Gifford. Later he established a grain and feed business in Vineyard Haven, setting up a steam mill on Water street in 1881. The business is now owned by Smith, Blandish, Swift Company. These enterprises prospered and about thirty years ago Mr. Rotch retired from active business, to be re-

Hurt When Car Is Struck

Mrs. Place Suffers Injured Ribs When Car is Run Into

Mrs. Velina Place, 72, of Oak Bluffs, sustained injuries to her ribs and was more or less shaken when her son’s car in which she was riding was struck from behind by that of Anthony Duarte of Vineyard Haven. The accident occurred last Sunday afternoon near Cal’s Ice Cream Store in North Tis- bur. Mrs. Place was taken to the Martha’s Vineyard Hospital where her condition was not regarded as serious.

Fred Place, Mrs. Place’s son, had driven his own car when the

Band Plays, Bell Tolls as Pupils Go from Old to New

Sixty Pupils, V. A. Co. Band, One Bell, One Flag, and a Procession

From Page One, Sec. 2

Company Will

Mr. Wilder then that the company w ill be on the possible in the load and has as a basic figure o. If could said, the line would be possible. Asked by Mr. We be possible for the 0.5 bonus for three contracting for str that it could be done town would be $1500.00. Now this procedure was mentioned or favored.

“We will do it, if that way,” he said.

(L. W. Be)

Was Many Years a

Resident of

News has been Bluffs friends of the 1 in Camden, South man W. Besse, pro Springfield and a summer resident he long maintained on Sea View avenue of Mrs. Besse a f. Besse sold his Vine details of his death received up to this general wills will at 3 p.m. in Spec.

WINDOWS

A complaint has Oak Bluffs police, broken by law in
Turkey Vulture - Avoids northeastern and NE states; not known to breed N of NJ.

Black Vulture - Confined to S states.

Osprey - Cowardly disposition; arrival coincides with schools of fish welcomed by fishermen as indicates approach of schools of shad, herring, etc.; public favor & tolerance no threat to domestic animals.

Reminds me of the Dajm.

C Gregarious - Gourling - 300 miles on Extremes of NJ; Wilson 20 within 10.
MEMOIRS OF THE NUTTALL ORNITHOLOGICAL CLUB.

indicate that at least a few of these Grouse may have succeeded in maintaining themselves for a
number of years, but there are no good reasons for believing that any of them are still living or
have left living descendants. In short the attempt to establish them permanently in the Cam­
bridge Region, as well as in certain other parts of Massachusetts where they were liberated at
about the same time, has evidently proved a complete failure.

(Tympanuchus cupido (Linn.). HEATH HEN. It is probable that Wood refers to this
Grouse when he speaks of the 'Heathcocks' in his poetical enumeration of "such kinds of Fowle
as the Countrey affoords." The word occurs in the following line: "The Turky-Pheasant,
Heathcocks, Partridge rare." In the following text he says: "Pheasons be very rare, but
Heathcocks, and Partridgges be common; hee that is a husband, and will be stirring betime, may
kill haile a dozen in a morning." He adds: "The Partridges be bigger than they be in England,
the flesh of the Heathcocks is red, and the flesh of the Partridge white." This indicates that
his 'Heathcocks' must have been the Heath Hen, and his Partridge the Ruffed Grouse. What
his 'Pheason' was we can only conjecture. Apparently he was not personally familiar with the
bird and he probably learned of it through the Indians, who may have had the Spruce Grouse in
mind, or, perhaps, from white men who had been in Virginia, where the Ruffed Grouse was and
still is called 'Pheasant.'

Josselyn asserts that "the Country hath" no "Pheasons, nor Woodcocks, nor Quails," but he mentions the "Partridge" which, he says, "is larger than ours, white flesh, but very
dry; they are indeed a sort of Partridges called Grooses." This passage relates, of course, to
the Ruffed Grouse.

Morton's testimony on these points is so interesting that I give it in full. It is as follows:
"There are a kinde of fowles which are commonly called Pheifants, but whether they be
pheifants or no, I will not take upon mee, to determine. They are in forme like our pheifant
henne of England. Both the male and the female are alike; but they are rough footed; and
have stareing fethers about the head and neck, the body is as bigg as the pheifant henne of Eng­
land; and are excellent white flefh, and delicate white meate, yet we feldome beftowe a fhoot at
them.

"Partridges, there are much, like our Partridges of England, they are of the fame plumes,
but bigger in body. They have not the figne of the horfeshoe on the breft as the Partridges of
England; nor are they coloured about the heads as thofe are; they fit on the trees. For I
have feene 40. in one tree at a time: yet at night they fall on the ground, and fit until! morning
fo together; and are dainty flefh.

"There are quailes alfo, but bigger then the quailes in England. They take trees alfo: for
I have numbered 60. upon a tree at a time. The cocks doe call at the time of the yeare, but with
a different note from the cock quailes of England."

Despite what Morton says to the effect that its flesh was white, I am inclined to believe that
his 'pheifant' must have been the 'Heathcocks' of Wood, which, as I have already stated,
was almost certainly the Heath Hen of later authors. The 'Partridges' mentioned by Morton

1 William Wood, New Englands Prospect, ed. 2, 1635, 22-23, 25. Charles Deane's ed., 1865,
29, 30, 32.
2 John Josselyn, New-Englands Rarities Discovered, 1672, 12, 13. E. Tuckerman's ed., 1865,
45-47.
were, without much doubt, Ruffed Grouse, and his ‘quailles,’ unquestionably Bob-whites which, as he asserts, occasionally “take trees also.”

Nuttall, writing of the Heath Hen in 1832, says: “Along the Atlantic coast, they are still met with on the Grous plains of New Jersey, on the brushy plains of Long Island, in similar shrubby barrens in Westford, Connecticut, in the island of Martha’s Vineyard on the south side of Massachusetts Bay; and formerly, as probably in many other tracts, according to the information which I have received from Lieut. Governor Winthrop, they were so common on the ancient bushy site of the city of Boston, that laboring people or servants stipulated with their employers not to have the Heath-Hen brought to table oftener than a few times in the week.”

The final statement in the above passage has a familiar sound, for with the substitution of ‘salmon’ or ‘shad’ for ‘Heath-Hen’ it appears in the early annals of several New England towns. If ‘laboring people’ and ‘servants’ were really ever surfeited with the flesh of Heath Hens killed on the hills now occupied by the city of Boston, the birds must have also visited the Cambridge shores of the Back Bay.

I have been permitted to quote the following interesting passage from ‘Notes of conversations with Eliza Cabot written down by her son, J. E. C. Cabot,’ and printed for private circulation in 1904: “I recollect the Western prairie grouse in this part of the country. I saw one once in Newton; and once, after I was married, your father went down to the Cape, fishing, and in the woods there I saw a grouse very near me, and saw him puff up that orange they have on the side of the neck.” Eliza Cabot was born on April 17, 1791, and married about 1811. Her granddaughter, Mrs. Charles Almy, thinks it probable that she saw the Grouse in Newton about the beginning of the nineteenth century, and the one on ‘the Cape’ (Cape Cod, no doubt) about 1812. That both birds were Heath Hens can scarcely be doubted, for there is no evidence that living western Grouse of any kind were introduced into Massachusetts at so early a period.

From the evidence above cited we may assume with reasonable safety that the Heath Hen was found rather numerously on the “ancient bushy site” of Boston, at the time that city was founded, while there are also reasons for believing that it frequented many other localities, more or less similar in character, along the neighboring coast, probably ranging as far northward as Cape Ann. Apparently it was exterminated nearly everywhere by the English colonists not long after this coast region became generally settled, and perhaps before 1650. Mrs. Cabot’s testimony indicates, however, that it had not wholly disappeared from Cape Cod, nor even from the immediate neighborhood of Boston, at the beginning of the past century.

On the island of Martha’s Vineyard it has continued to exist in limited and varying numbers down to the present day.

(Phasianus torquatus Gmel. RING-NECKED PHEASANT. ‘MONGOLIAN PHEASANT.’ This fine bird, the Ring-necked Pheasant, has apparently become permanently established in the Cambridge Region—as well as in many other parts of Massachusetts—during the past eight or ten years. Although not as yet very numerously represented in our immediate neighborhood, it appears to be already rather generally distributed there, especially in portions of Cambridge, Arlington, Belmont and Watertown. It is perhaps seen oftener in the greatest numbers in the region lying immediately to the north and west of Fresh Pond. Here as else—

2 J. E. Cabot, J. Elliot Cabot, [Autobiographical sketch—Family reminiscences—Sedge birds]. 1904, 94.
where it frequents practically every kind of ground, although it is found less often—at least in summer—in dense woods than in open, thinly settled farming country, where it feeds at morning and evening well out in cultivated or grassy fields and skulks during the remainder of the day about the edges of briery thickets or in beds of rank herbaceous plants. In these respects its habits resemble those of our Quail. Like that bird, too, it sometimes comes close about buildings when the ground is deeply covered with snow and food difficult to obtain. During the winter of 1902-1903 a dozen or more Pheasants were frequently seen, shortly after sunrise, feeding on a large manure heap near a barn on the Hittinger farm, just to the westward of Fresh Pond. When disturbed they invariably separated into two flocks which flew off in different directions. It is said that a nest containing eggs was found not far from the eastern confines of this farm in the spring of 1902.

I have compiled the following brief statement of the more important facts and dates relating to the introduction of these Pheasants from the annual reports of the Massachusetts Commissioners of Inland Fisheries and Game.

In the summer of 1894 a few birds were obtained, apparently from Oregon, by Mr. Samuel Forehand and by him were presented to the Massachusetts Commissioners of Inland Fisheries and Game who erected a 'State aviary' for their reception at Winchester. Although a number of eggs were laid, it does not appear that any chicks were reared that season.

Early the next spring twelve more birds (three cocks and nine hens) were received, also from Oregon. They bred so successfully that by the close of the summer there were considerably more than seventy-five young birds, many of which were allowed to escape into neighboring gardens and woods.

The following year over two hundred chicks were reared in the aviary, while nests with eggs and broods of young, belonging to escaped birds, were found in various parts of Winchester.

In 1897 nine pairs of mature birds were liberated in Winchester, and a number of broods of young were seen in that town. A Pheasant was killed in Watertown during this year.

In their report for 1898 the Commissioners state that "there have been but few [Pheasants] liberated in Winchester from the State aviary, yet this and the surrounding towns are becoming fairly well stocked. . . . On one estate, within two miles of the aviary, the owner reports that not less than seven or eight broods have been seen this season, and surely not less than fifty birds reared."

From the standpoint of the naturalist the introduction of most exotic forms of animal life must ever be a matter of regret rather than of satisfaction. And these Pheasants, despite their undeniable beauty of form and coloring and reputed value as game, seem deplorably out of place in a New England landscape. Even if they do not crowd out our Quail or Ruffed Grouse,—as

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1 In these reports the birds are invariably referred to as 'Mongolian Pheasants,' and the Commissioners distinctly assert in one connection (Report for 1894, p. 17) that they declined to purchase specimens of the "ordinary ring-neck, a very different pheasant from the Mongolian." I have had no opportunity of closely examining any of the birds which they have introduced, but other ornithologists who have done so (among whom may be named as good an authority as Mr. Outram Bangs) have unhesitatingly pronounced them to be _P. torquatus_. Mr. Robert Ridgway in the last edition of his 'Manual of North American Birds' (p. 206) cites _torquatus_ among the species which have become naturalized in Oregon (whence our Massachusetts birds were originally derived) and does not mention the Mongolian Pheasant as occurring in North America at all. A recent popular writer on Pheasants also refers to "the so-called 'Mongolian' pheasant, properly the China Ring-neck, or _Torquatus_"; adding, "the true Mongolian has never reached this country alive." (Homer Davenport, _Country Life in America_, IV, 1903, 335.)
it has been feared they may eventually do,—or devastate our cultivated crops,—as they are already accused of doing,—it would have been much wiser to expend the time and money which have been devoted to their naturalization in fostering and increasing our stock of native game birds.

[Meleagris gallopavo silvestris (Vieill.). WILD TURKEY. The works of Morton, Wood, Josselyn and other early writers on New England furnish convincing evidence that the Wild Turkey was abundant in eastern Massachusetts when the country was first settled. Morton, referring, no doubt, to his experience at Merrymount, now Wollaston, only a few miles south of the Cambridge Region, where he lived from 1625 to 1628, and again in 1629 and 1630, says: "great flocks [of Turkeys] have fallied by our doores; .... I had a Salvage who hath taken out his boy in a morning, and they have brought home their loades about noone. I have aiked them what number they found in the woods, who have anfwered Neent letawna, which is a thousand that day." Wood confirms this by stating that "sometimes there will be forty, three-score, and an hundred of a flocke, sometimes more and sometimes leffe; their feeding is Acornes, Hawes, and Berries, some of them get a haunt to frequent our English corne: In Winter when the Snow covers the ground, they refort to the Sea shore to looke for Shrimps, and such small Fishes at low tides. Such as love Turkie hunting, must follow it in Winter after a new fallen Snow, when he may follow them by their tracts; some have killed ten or a dozen in halfe a day; if they can be found towards an evening and watched where they perch, if one come about ten or eleaven of the clocke, he may shoote as often as he will, they will fit, unleffe they be slanderly wounded. These Turkie remaine al the yeare long, the price of a good Turkie cocke is foure shillings; and he is well worth it, for he may be in weight forty pound; a Hen two shillings." Josselyn mentions seeing, probably at Black Point (now Scarborough), Maine, "three score broods of young Turkeys on the fide of a Marsh, funning of themfelves in a morning betimes, but this was thirty years since [in 1638 or 1639], the English and the Indian having now [1671] defroyed the breed, fo that 'tis very rare to meet with a wild Turkie in the Woods." That the species was formerly found throughout the Cambridge Region, there can be no reasonable doubt. Turkey Hill in Arlington may well have derived its name from the presence there of this noble bird in early Colonial days. Indeed, Mr. Walter Faxon writes me that an acquaintance of his has seen "in a manuscript diary of the ancestor of an Arlington man... an entry of killing some Wild Turkeys in the region about Turkey Hill." At Concord, less than ten miles further inland, the species had not become wholly extinct at the beginning of the past century. The late Steadman Buttrick of that town, a keen lover of field sports and a man of undoubted veracity, who died in 1874, used to delight in narrating how, when a boy, he had made repeated but invariably fruitless expeditions in pursuit of the last Wild Turkey that is known to have lingered in the region about his home. He often saw the bird, a fine old gobbler, but it was so very wary that neither he nor any of the other Concord gunners of that day ever succeeded in getting a fair shot at it. It was in the habit of roosting in some tall pines on Ball's Hill whence, when disturbed, it usually flew for refuge into an extensive wooded swamp on the opposite (Bedford) side of Concord River. Mr. Buttrick was born in 1796. As he was presumably at least twelve or fifteen years of age before he began to use a gun effectively, it is probable that his experience with the Wild Turkey happened some time between 1808 and 1815.]

76. *Ectopistes migratory* (Linn.).

Passenger Pigeon. Wild Pigeon.

Formerly a transient visitor in spring and autumn, sometimes occurring in immense numbers; now exceedingly rare, and perhaps extinct.

**Seasonal Occurrence.**

April 23, 1875, one ad. male taken, Waltham, W. Brewster.

October 21, 1871, one female taken, Watertown, W. E. D. Scott.

Of the many passages which might be cited, attesting the extraordinary abundance of Wild Pigeons in New England in former times, that published in 1634 by Wood is perhaps the most pertinent to the present connection, since it evidently relates in part to a locality (the neighborhood of Lynn) only a few miles distant from the Cambridge Region to which, without doubt, it might equally well have been applied. It is as follows: “These Birds come into the Countrey, to goe to the North parts in the beginning of our Spring, at which time (if I may be counted worthy, to be beleeved in a thing that is not so strange as true) I have seene them fly as if the Ayerie regiment had beene Pigeons; seeing neyther beginning nor ending, length, or breadth of these Millions of Millions. The shouting of people, the rating of Gunnes, and pelting of small shotte could not drive them out of their courfe, but so they continued for foure or five houres together; yet it muft not be concluded, that it is thus often; for it is but at the beginning of the Spring, and at Michaelmas, when they returne backe to the Southward; yet are there some all the yeare long, which are easily attayned by such as looke after them. Many of them build amongst the Pine-trees, thirty miles to the North-east of our plantations; joyning nest to nest, and tree to tree by their nests, so that the Sunne never sees the ground in that place, from whence the Indians fetch whole loades of them.”

Dr. Samuel Cabot told me, shortly before his death, that when he was at Harvard College (1832-1836) Passenger Pigeons visited Cambridge regularly in both spring and autumn, sometimes in immense numbers. He dwelt particularly on the recollection of a morning in early spring when the ground was still covered with three or four inches of snow and when, as he was crossing the College Grounds

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1 No. 215, collection of William Brewster.
on his way to a recitation, he was tantalized by the sight of great flocks of Pigeons continually passing overhead towards the westward. The recitation finished, he returned to his room for a gun and followed their line of flight which led to some gravel banks at Simon’s Hill, near where the Cambridge Hospital now stands. Here he took a position on the crest of a knoll and in a short time killed eighteen birds. Not far off some men were working a net. They had captured a large number of Pigeons, and Dr. Cabot saw them take several dozens at a single ‘strike.’

Such experiences were numbered among those of the past in the Cambridge Region when I began to take an active interest in its birds, but for ten or fifteen years later it was by no means uncommon to meet with a few Pigeons here, even within our city limits. I saw a flock of about fifty at Pout Pond on the morning of September 2, 1868. They came from the northward, and I still remember how distinctly the red breasts of the males showed in the level beams of the rising sun as the birds circled once over the pond; they were apparently looking for a place to alight, but finally kept on southward.

Three years later a really heavy flight passed through eastern Massachusetts between September 2 and 10. I was in the Maine woods at the time, but on my return was assured by game dealers in the Boston markets and by reliable sportsmen of my acquaintance that the birds had been very numerous everywhere and that “thousands” had been killed. At Concord and Reading old pigeon trappers had even used their long neglected nets with some success. My notes state that at Cambridge large flocks were seen passing at frequent intervals for three or four days, and that at night the birds “roosted in pine woods.”

On July 6, 1870, I shot a female Passenger Pigeon which was eating red currants in our garden, and on June 20, 1874, I killed another in the same cluster of bushes, the fruit of which, however, could scarcely have been ripe at so early a date. Both these birds were young,—fully grown but still in first plumage. They were exceedingly tame, as was also a third young bird which, early in September, 1878, spent a week or ten days in or near our grounds, feeding, much of the time, in Sparks Street, where I frequently saw it avoid passing carriages by merely moving a little to one or the other side, just as a domestic pigeon would have done under similar circumstances.

Mr. W. E. D. Scott has asserted that in “1870, and before,...... close to the town [Cambridge], in the vicinity of Mount Auburn, a few [Passenger Pigeons] bred every year.”1 In another and more recently published passage relating to the same period, he has reasserted that at “‘The Farm’...... just back of

1 W. E. D. Scott, Bird Studies, 1898, 203.
Mount Auburn” these Pigeons “still bred in small numbers in the pine woods.”\textsuperscript{1} In 1869 I was living during the entire spring, summer and autumn in a house situated less than a quarter of a mile from the woods to which Mr. Scott refers, and during this year, and the five or six years immediately preceding, as well as following, it, ‘The Farm’ was at all seasons one of my favorite and most productive collecting grounds. It was also visited more or less frequently by H. W. Henshaw, Ruthven Deane and several other excellent observers. Had Wild Pigeons been found breeding anywhere in the neighborhood during this period it does not seem likely that the fact would have been known only to Mr. Scott, especially as we were all intimately acquainted with him and his field work when he was at Cambridge. As it has been unknown, all these years, to everyone else, I feel justified in claiming that his statements, above quoted, require confirmation. Probably they were based on his recollection of the capture of the young birds to which I have just alluded, or on that of a female Pigeon which he himself shot on October 21, 1871, in an asparagus bed near Mount Auburn.\textsuperscript{2} All these birds were quite strong enough of wing to have flown a hundred miles or more, but it is not unlikely that some of them were feared in Middlesex County. Indeed I have notes of the breeding of the Passenger Pigeon at two localities in this county in 1875. On May 22 of that year a nest containing a single egg was found in Weston by the late Mr. E. B. Towne. Later that same season my friend, Mr. George H. Robbins, met with no less than three nests, on which the birds were sitting, near his house in Carlisle. As he is a careful observer and accustomed by long experience to distinguish Wild Pigeons from Carolina Doves, I have entire confidence in the accuracy of this record.

On April 23, 1875, I killed a fine adult male near the Lyman estate in Waltham. It was the last Pigeon that I have seen, or am likely to see, alive in the Cambridge Region, but on September 30, 1885, Mr. H. W. Henshaw and I, while collecting in the ‘Warren Run’ (a little to the southwest of Crown Hill), picked up an adult female which had evidently been dead only a few hours and which proved, on dissection, to have been shot through the lungs. Both of these birds, with the young female, taken on June 20, 1874, in our garden, are preserved in my collection.

I find it difficult to believe that the Wild Pigeon has become wholly extinct, but some of my ornithological friends, who have recently investigated the subject rather carefully, are convinced that the only birds now living are a few captive ones in the possession of Professor C. O. Whitman of Chicago, Illinois.

\textsuperscript{1} W. E. D. Scott, Story of a Bird Lover, 1903, 39, 40.
\textsuperscript{2} This is the only Wild Pigeon mentioned in Mr. Scott’s catalogue of the birds which he collected in the region about Cambridge, the original manuscript of which is in my possession.
Osprey  
Fish-hawk

Attacked by eagles to drop its prey.  

Eagles

Osprey can wreak havoc among other birds; sometimes carries off lambs; has made attempt to carry off children; will rob sportsman of birds he has shot.

Osprey - interesting and harmless; never attacks birds or land animals; social and friendly. End March/early April with alewives.
CHAPTER VII.

PINNATED GROUSE; OR, PRAIRIE HEN—(TETRAO CUPIDO.)

"Hurrah for the prairie! No blight on its breeze,
No mist from the mountains, no shadow from trees."

This species of grouse is very different in many respects from the last-mentioned variety. Its appearance, habits, flesh, are all quite dissimilar, and we regret never having had very full opportunities for studying these interesting birds in their natural haunts, the rich prairies of the far West. However, we, as many others, have this pleasure still in anticipation, and in the mean time will endeavor to lay before our sporting friends all the information upon this head that we have culled from reading and conversing with those who have been in the habit of hunting these birds for years past, and trust, at all events, that we shall succeed in making this chapter as interesting as some others that we have compiled for the benefit of sportsmen.

Wilson thus describes this bird. The pinnated grouse is nineteen inches long, twenty-seven inches in extent, and when in good order weighs about three pounds and a half; the neck is furnished with supplemental wings, each composed of eighteen feathers, five of which are black, and about three inches long: the rest shorter, also black, streaked laterally with brown, and of unequal lengths: the head is slightly crested; over the eye is an elegant semicircular comb of rich orange, which the bird has the power of raising or relaxing; under the neck wings are two loose pendulous and wrinkled skins, extending along the sides of the neck for two-thirds of its length, each of which, when inflated, resembles in bulk, color, and surface a middle-sized orange; chin cream-colored; under the eye runs a dark streak of brown; whole upper parts mottled transversely with black, reddish-brown and white; tail short, very much..."
rounded, and of a plain brownish soot color; throat elegantly marked with touches of reddish-brown, white and black; lower parts of the breast and belly pale brown, marked transversely with white; legs covered to the toes with hairy down of a dirty drab color; feet dull yellow, toes pectinated; vent whitish; bill brownish horn color, eye reddish hazel. The female is considerably less; of a lighter color, destitute of the neck wings, the naked yellow skin on the neck, the semicircular comb of yellow over the eye.

Location.—The prairie hen was no doubt formerly widely disseminated over our whole country, more particularly in those portions interspersed with dry, open plains, surrounded by thin shrubbery or scantily covered with trees. Unlike the ruffed grouse, this bird delights in the clear open prairie grounds, and will desert those districts entirely that, in the lapse of time, become covered with forests. These birds are very rare, in fact may almost be considered extinct, in the Northern and Middle States. Within a few years, they were quite abundant on some portions of Long Island. They were also to be found in Burlington county, New Jersey, and in some few other places. There are, however, still a few to be found on the Jersey plains, and every season we hear of some of our sporting acquaintances exterminating a small pack. We know of ten braces being killed this season, 1848, and about the same number last year, by the same party, and as usual, in both instances, these scarce and beautiful birds were butchered long before the time sanctioned by the strong or rather the weak arm of the law.

Thus it is that the destructive hand of the would-be respectable poacher, as well as the greedy gun of the pot-hunter, hastens to seal the fate of the doomed prairie hen in these eastern regions, and we may predict with great certainty that ere long, not one will be found save upon the rich plains of the West; from which also, in course of time, they will be driven, and ultimately perish root and branch from before the unerring guns of their ruthless destroyers. We understand that there are still a few of these birds to be found in Pennsylvania, we believe in Northampton county, where the pine forests are thin and open, and the country about them such as prairie hens delight in. They have always been abundant in the barrens of Kentucky and Tennessee, as also in the balmy plains and fertile
prairies of Louisiana, Indiana, and Illinois. So numerous were they a short time since in the barrens of Kentucky, and so contemptible were they as game birds, that few huntsmen would deign to waste powder and shot on them. In fact, they were held in pretty much the same estimation or rather abhorrence that the crows are now in Pennsylvania, or other of the Middle and Southern States, as they perpetrated quite as much mischief upon the tender buds and fruits of the orchards, as well as the grain in the fields, and were often so destructive to the crops that it was absolutely necessary for the farmers to employ their young negroes to drive them away by shooting off guns and springing loud rattles all around the plantations from morning till night. As for eating them, such a thing was hardly dreamed of, the negroes themselves preferring the coarsest food to this now much-admired bird; while the young sportsman exercised his skill in rifle-shooting upon them in anticipation of more exciting sport among the other prized denizens of the plain and forest. Prairie hens have not only deserted Long Island, Martha’s Vineyard, Elizabeth Island, New Jersey, and their other haunts to the eastward, but they have also removed even farther west than the barrens of Kentucky, and are no longer to be found abundant save in Illinois, and on the extensive plains of the Missouri, Arkansas, and Columbia Rivers.

Period of pairing.—As soon as the winter breaks up, the pairing season commences, generally in March or early in April; then it is that one can distinguish the well-known booming sound of the male bird, known as the “tooting” of the cock. This singular noise is produced by the inflation and exhalation of the two small bags which are found on the neck, and appear to be formed by the expansion of the skin of the gullet, which, when not filled with air, hangs in loose, pendulous, wrinkled folds. When, however, they are charged with air, they are about the size of a full-grown orange. When these air chambers are freely distended, the cock inclines his head to the ground, opens his bill, and by a muscular effort forces out the air, which produces three melancholy and monotonous notes, not unlike the booming sound uttered by the night hawk when in pursuit of food in mid air, and which latter sound has not inaptly been compared to the noise occasioned by blowing violently into
the bung-hole of an empty barrel. This tooting, on a clear mild morning, can be heard several hundred yards off.

These birds, like the ruffed grouse, are extremely pugnacious at these times, and, during the early period of incubation, the males meet at early dawn at particular spots termed "scratching grounds," where they toot and strut about with extended wings and widespread tails, much in the pompous style of turkey gobblers, and, after a little while thus spent in expressing their wrath and defiance, they engage in the most obstinate and sanguinary conflicts, not inferior to the battles often witnessed between game-cocks.

During these encounters, they spring up in the air and strike their antagonists with the utmost fury, and oftentimes with the greatest effect; feathers are freely plucked from each other's bodies, and their eyes are not unfrequently seriously injured before one or other of the combatants gives way, and flies to the woods for shelter. A friend of the author, who is very familiar with the habits of these birds, informs him that last spring he witnessed, for over an hour, a series of battles between a number of these birds upon a favorite scratching ground, and declares that, after they had all retired, he might have picked up a hat full of feathers which they had torn from one another.

The nest is formed upon the ground, in a very secret spot upon the open plain, or perhaps at the foot of a small bush. It is rudely constructed with a few leaves and particles of grass, and contains from eight to twelve eggs of a brownish dirt color, and somewhat larger than those of the tetrao umbellus.

The birds are able to run a very short time after hatching, and the mother alone attends upon them, supplying them with food, calling them around her by a cluck, and nestling them under her wings at nightfall, or when the weather proves unfavorable, very much in the style of the common barn hen. The pinnated grouse is not so retiring and secluded in its disposition as the other variety, and is not very difficult to domesticate even when taken wild, as it soon becomes tame and accustomed to the presence of man.

Audubon cut the tips of the wings of sixty of these birds towards the close of the summer, and turned them out into an enclosure, where they remained quite contented the whole winter through,
and soon became sufficiently gentle to feed from the hands of his wife. They appeared quite unmindful of their former state of freedom, and conducted themselves very similarly to the tame fowls, with which they often mingled on the most friendly footing. In the spring, they "tooted" and strutted about in the most pompous style imaginable, even as much so as if they were still in their native haunts, and even coupled and hatched many broods. Their pugnacious tempers would not permit them to quail even before the threatening presence of the largest turkey cock, and they would not unfrequently take a round or two with the dung-hills of the poultry yard. The pinnated grouse, as the other variety, hatch but one brood each season, except when disturbed, as they are frequently, by the crows, hawks, polecats, raccoons, and other animals. When wandering about with their young, if interrupted, they resort to the same artifices as the partridge to protect their young. Their food consists of wild strawberries, cranberries, partridge berries, whortleberries, blackberries, and young buds. They also partake of worms, flies, and insects generally. In the winter season, they eat acorns, the tender buds of the pine, clover leaves, and, when convenient to their haunts, will frequent buckwheat stubble.

They are said to remain stationary during the whole year round, and show no disposition to migrate or travel as the ruffed grouse or partridge. They affect the dryest situations, and avoid as far as possible marshy or wet places, and partake very sparingly of water, in fact depend entirely for a supply of this fluid from the morning dew, which they collect from off the leaves of plants. So dry are the situations that these birds generally affect that it is absolutely necessary to carry water along for the dogs, otherwise they will soon be entirely overcome by thirst.

*Flight.*—If surprised, the pinnated grouse rise with a moderate whirring sound; but, if they discover the sportsman at a distance, they run off with the utmost speed, then squat and remain perfectly silent till passed by or put up by the dog. Their flight is strong, regular and tolerable, swift, and at times, according to Audubon, protracted to several miles without intermission. They fly less rapidly than the ruffed grouse, and often repeat two or three cluckings when about to spring or when on the wing; they also frequently
take to the branches of the highest forest trees, and if then shot, they fall and turn round and round with great violence, not unlike a common chicken, till dead. If wounded only, they run with great swiftness, and hide themselves in some secluded spot, where they remain motionless.

*Feeding and roosting.*—Prairie hens resort to their feeding ground at a very early hour of the day, and retire towards noon to preen and dust themselves in the ploughed fields or along the roads. They do not roost on trees, but, like the partridge, they select a little eminence of ground, in the open field, and squat about within a few feet of each other.

*Their flesh.*—The merits of the meat of these two varieties of grouse are often a subject of discussion among sportsmen and epicures, whose opinions are often entirely at variance. We know very well that the tastes of people are much influenced by circumstances, and we are all apt to relish that most which it is most difficult to obtain; and the residents of those parts where prairie hens are abundant as a matter of course generally prefer the white and delicate meat of the ruffed grouse, while those that live in the Atlantic States, and seldom or never see a prairie hen, greatly prefer the dark meat of the latter bird, as it is to them a greater novelty and luxury than the other. They are considered a great delicacy at the east, and when exposed for sale command extravagant prices, seldom less than five dollars a brace, although we have purchased superior ones in the Philadelphia markets for two dollars, and even less. We do not think them equal by any means in point of flavor to the ruffed grouse. There are other varieties of grouse, found within the limits of the United States, two of which we will merely mention. They are occasionally met with in the wilds of Maine and Massachusetts, but are more common in Canada. Their haunts are very secluded, and they seldom encounter the form of a human being, and consequently are not much alarmed at his presence; their flesh is dark, and resembles that of the Prairie Hen—Tetrao Saliceti, Willow Grouse; and Tetrao Canadensis, the Spotted or Canada Grouse.
MEMORANDA.

1. The prairie hen is now almost exclusively confined to the open champaign countries of the West.

2. Their habits and modes of life are very different from those of the ruffed grouse, the one seeking the seclusion of the deepest forests, while the other delights only in the open plains.

3. The time of pairing, period of incubation, number of young, and habits of male birds, all much the same as the ruffed grouse.

4. The cock birds at the pairing season are heard "tooting" instead of "drumming;" they are very pugnacious, and fight with great spirit among themselves during the period of courtship.

5. Unlike the ruffed grouse, the pinnated are easily domesticated, and will pair and hatch in captivity; they exhibit no disposition to migrate, as the other variety does.

6. Their meat is dark, and inferior to that of the ruffed grouse.