(6) Wildlife hazard or national resource? Inter-agency collaboration and wildlife management at the Jackson Hole Airport

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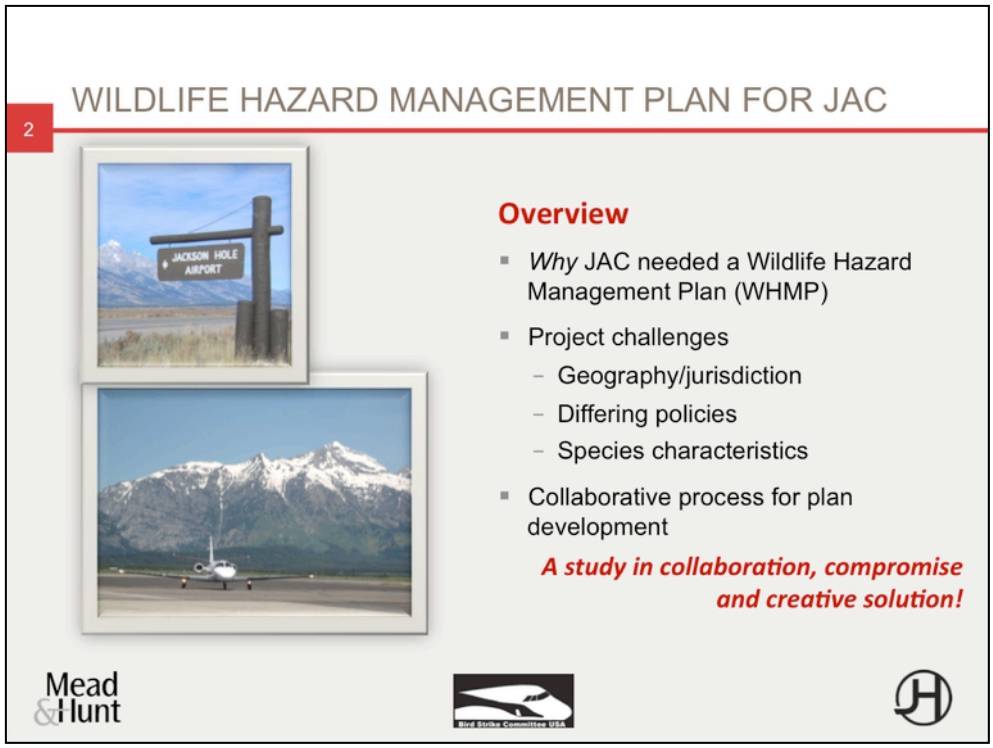
Nestled in an iconic western landscape characterized by the Grand Tetons, Wyoming's Jackson Hole Airport (JAC) is the only U.S. airport located wholly within a National Park. But the charismatic wildlife that draws park goers can also pose hazards to aircraft. In recent years, more than 60 wildlife strikes have occurred at JAC, more than 50 percent of which involved the greater sage-grouse (*Centrocercus urophasianus*), a candidate for federal and state protection. Many strikes appeared to be associated with the presence of an active sage-grouse lek that has been present in JAC's runway safety area (RSA) since the 1940s. When the Federal Aviation Administration (FAA) required the Jackson Hole Airport Board to prepare a Wildlife Hazard Management Plan (WHMP) in 2012, the Board identified the great potential for controversy among the many regulatory agencies associated with aviation and wildlife management, including the National Park Service at Grand Teton National Park, which serves as the airport's landlord and is responsible for all natural resources within park boundaries. To address this potential controversy and formulate a plan that would be feasible and acceptable to multiple stakeholders with potentially opposing policy goals, the Board embarked upon a year-long collaboration among three federal agencies (FAA, the United States Department of Agriculture, and the National Park Service), the State of Wyoming Game and Fish Department, a local conservation group (Local Sage-grouse Working Group), and private research scientists with sage-grouse expertise (Beringia South). Working together the stakeholders forged a consensus regarding the elements necessary for a successful yet species-protective WHMP. The Wildlife Hazard Management Plan for the Jackson Hole Airport provides both a short- and long-term approach that will restore habitat in previously disturbed areas of Grand Teton National Park and the Jackson Hole area and increase the separation between aircraft and wildlife by providing alternative nearby habitat for leks and brood rearing. The WHMP includes measures to alter attractive features on the airport incrementally in an effort to encourage the grouse to rely on the new alternative sites. The proposed plan identifies the species-specific characteristics and habitat needs of greater sage-grouse, targeted areas for new lek sites and brood-rearing habitat, an analysis of the distance and relationship between these proposed restoration areas to flight paths, and a 30-year monitoring program to measure progress. The collaborative effort fostered by the Jackson Hole Airport Board culminated in the development of a WHMP that could only exist using the combined knowledge and resources contributed by the several agencies involved; the National Park Service staff provided knowledge and physical resources (restoration sites) to support the special needs associated with the greater sage-grouse, while staff from the JAC, USDA, FAA, and their consultants provided the input and expertise necessary to enhance safety for aircraft operators and air travelers. FAA formally accepted the plan in November 2014.

Harmon, L. and D. Hirchert. 2015. Wildlife hazard or national resource? Inter-agency collaboration and wildlife management at the Jackson Hole Airport. Proceedings of the North American Birdstrike Conference 15. 32 pages.

Hello.

- Lisa Harmon, and I am an Aviation Planner with Mead & Hunt. Dan Hirchert, the FAA-qualified biologist with whom I worked on this project for the past 2 years is unable to be here.
- He recently left M & H to become the State Director for USDA in Wisconsin and sends his regrets.

- I'm going to talk about a fascinating project that Dan have been working on for more than two years now, and was approved by FAA last autumn.



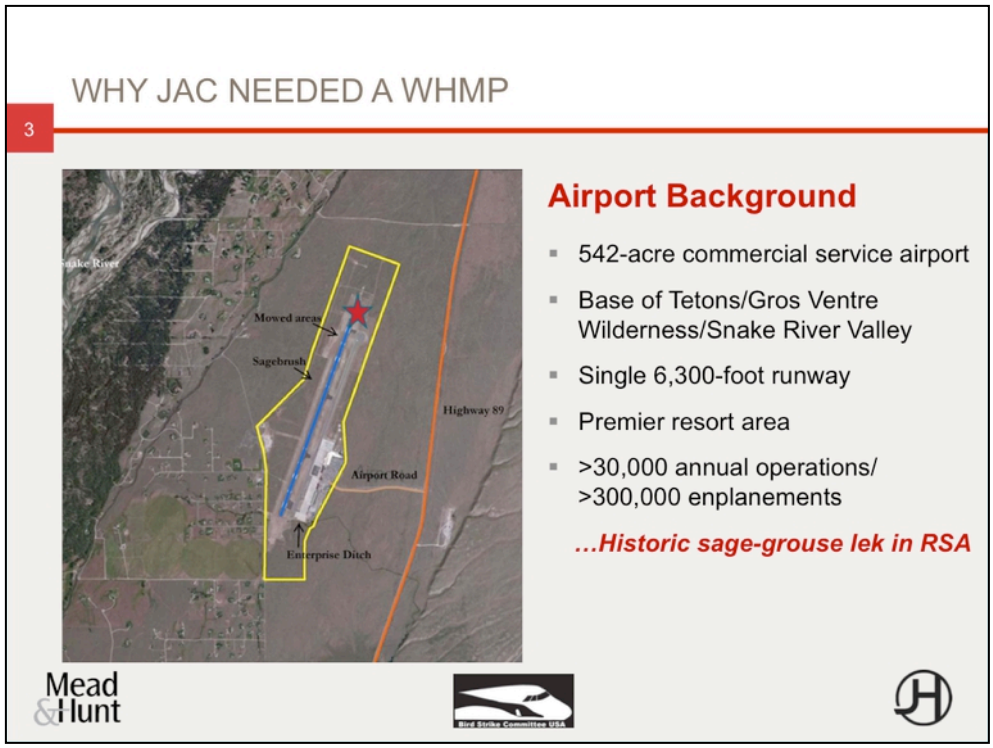
- From November 2012 through November 2014, Mead & Hunt worked with the Jackson Hole Airport to develop a Wildlife Hazard Management Plan to reduce wildlife hazards to aircraft operations.
- The WHA was complex for lots of reasons.

First I'll give you a bit of backstory—

- The events that triggered a WHMP for JAC and
- the specific challenges associated with plan development. Those challenges were geographic, biological (species specific) and policy based.

Eventually, we completed a plan that FAA approved late last year.

- I'd like to take a few minutes to focus on the extensive public agency

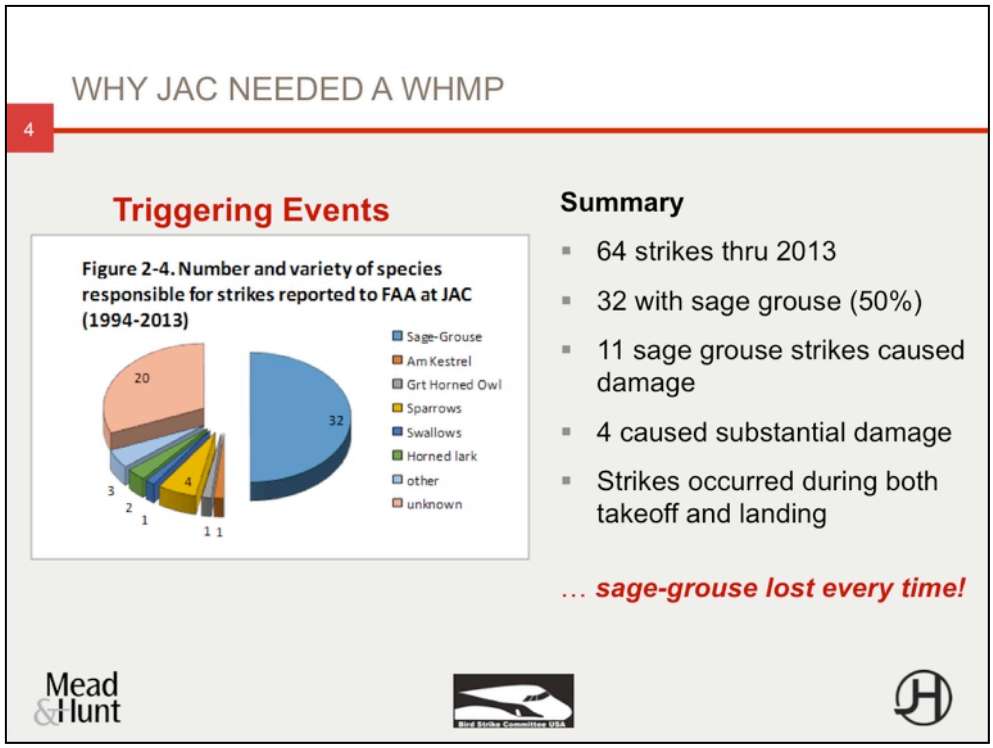


Let's talk a bit about the Jackson Hole Airport.

The Airport includes more than 500 acres nestled in the Snake River Valley between the Grand Teton Mountains to the west and the mountains of the Gros Ventre Wilderness Area. (Nearby peaks range from 9,600 to 13,8,00 feet msl.)

The airport is in a premier resort area. Though the airport has a single 6,300-foot runway, it supports more than 30,000 annual ops and more than 300,000 passenger enplanements. Forecasted to increase.

Oh yeah, there's one other thing. A lek site for the Greater sage grouse has been located in the RSA—not the RPZ– at the north end of the runway since the 1940s.

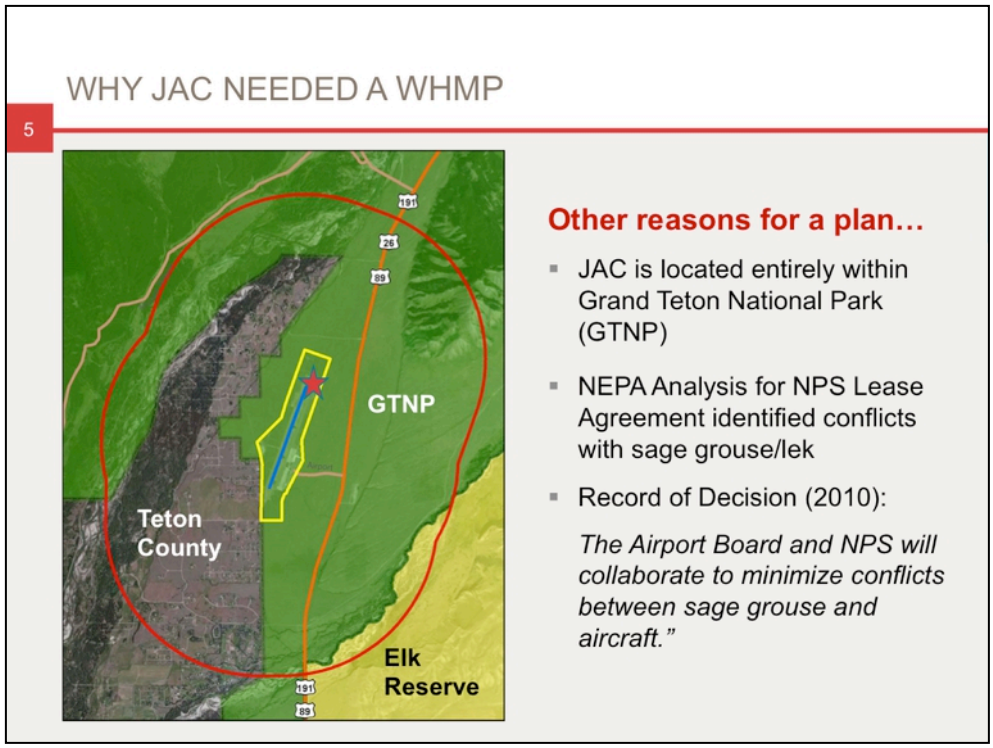


The table shows the data we had at the time of WHMP preparation. At that time 64 documented strikes had occurred, ***32 or 50% of which*** of which were associated with the greater sage grouse.

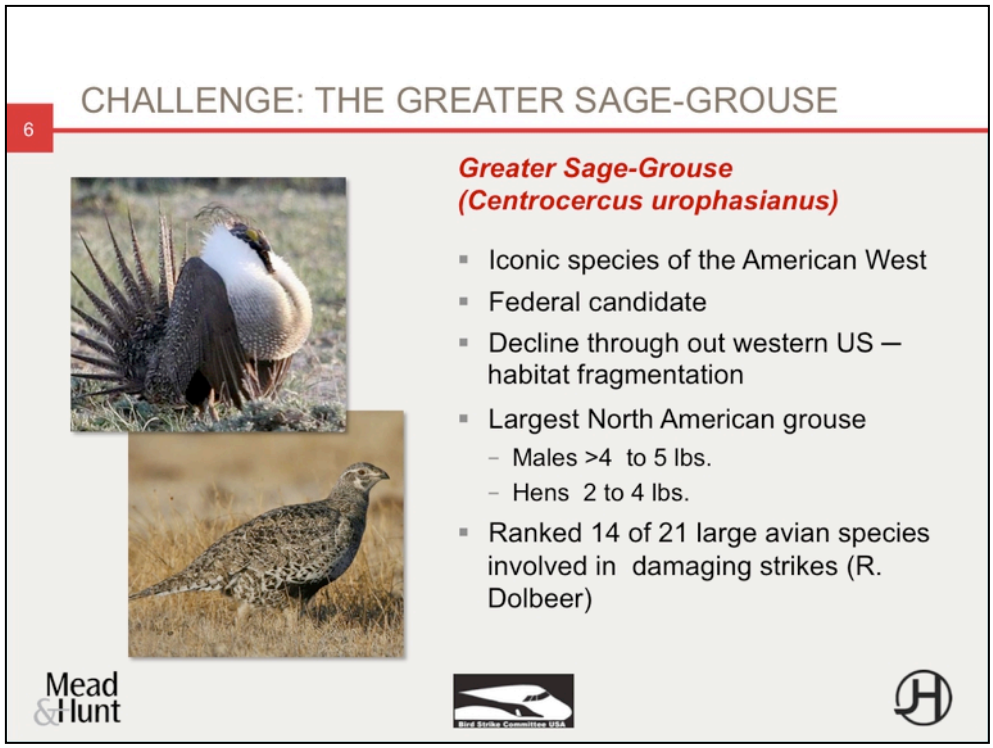
- 32 of 64 strikes (50%) associated with sage-grouse
- 12 of 32 strikes caused aircraft damage, 11 of which were associated with the grouse and caused damage
- 4 strikes with grouse had caused ***substantial*** damage (>$200,000)
- Strikes occurred during both take offs and landings.

And in the sage grouse lost every time!

Since 2013, six additional strikes have occurred at JAC, but they have not involved the sage grouse. 2 were unknown, two were with horned owl, and two were with horned lark, which had not been observed previously….



- JAC is the only airport in the U.S. that is located entirely within a National Park.
- The County operates the airport under a lease agreement with the NPS that must be renewed periodically, and each time it does, a NEPA analysis is required to determine whether Airport operations have the potential to "Impair" resources within the park.
- The last ROD (in 2010) clearly identified the conflict between the sage grouse airport and directed NPS and the airport to work together to figure something out.



- So let's talk about this charismatic bird known as the sage grouse.
- It has been proposed for listing (USFWS is supposed to make a determination on listing later this month).
- Based on it's size , a sage grouse poses an increased risk compared to other species. In fact, our friend Richard rank's it as 14th out 21 species known to cause damaging strikes.

CHALLENGE: THE GREATER SAGE-GROUSE

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Figure 2-5. Bird strikes reported by month at JAC, 1994-2013

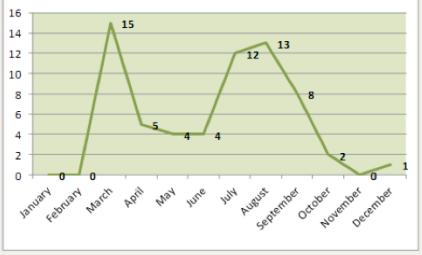
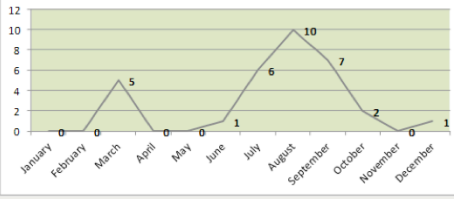


Figure 2-6. Month of Sage-Grouse strikes at JAC (1994-2013)

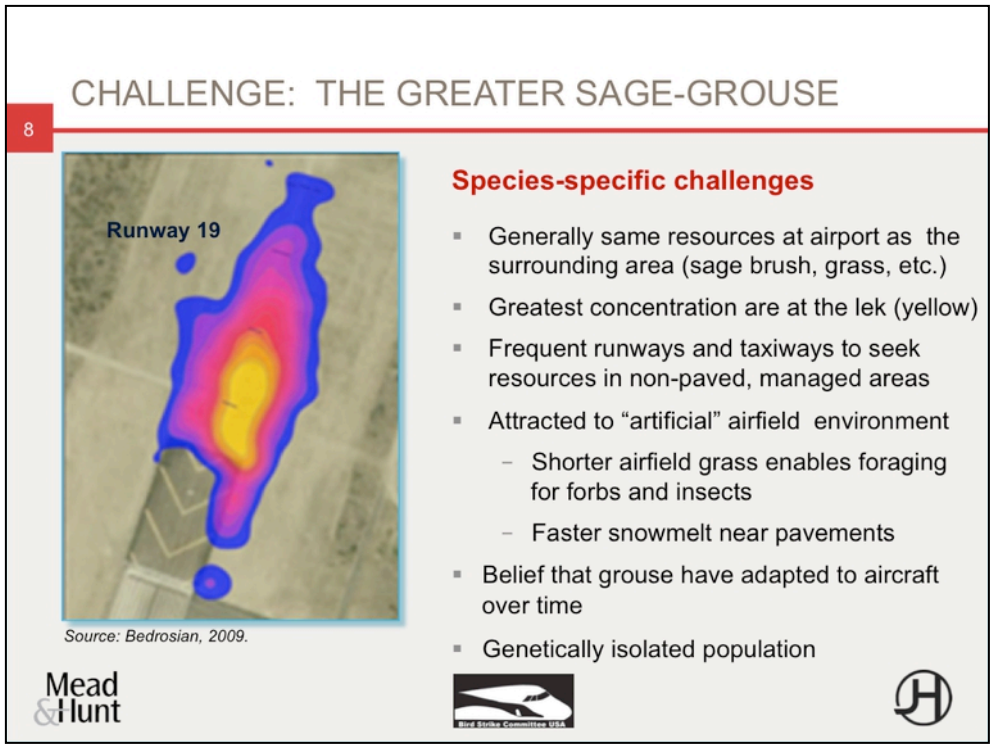


Species-specific challenges

- Fidelity to historic lek area
- Fly infrequently and at *very* low altitude (83% of strikes ≤12 feet)
- Poor pioneers (travel < 500 meters)
- Greatest risk from hens and young:
  - Females visit lek in spring
  - Nest off-site (north and south)
  - Return to airport in the fall with young

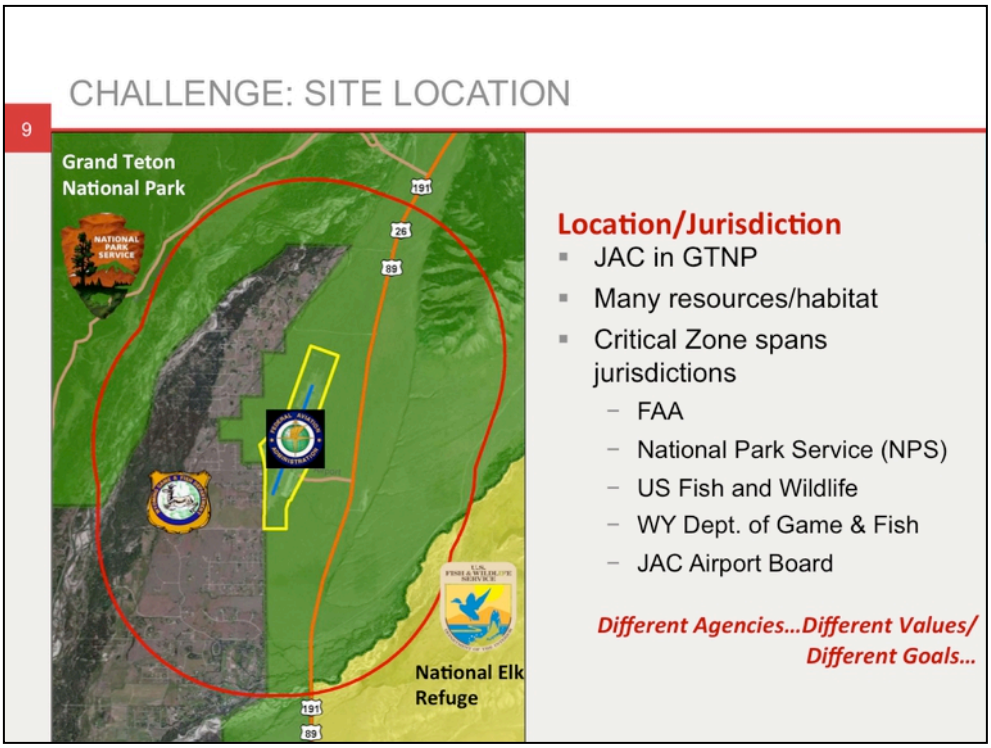
- *The sage grouse have great fidelity to the lek area. We cannot just pick up and move them.*
- *While overall more strikes occurred in the spring (15 peak), the number of grouse strikes is higher in the fall (25 grouse strikes)*
- *SO, contrary to popular thought, it's not the lekking males that were being struck, but the females who return to the lek each fall with their young.*
- *Real challenges are associated with the species-specific characteristics because these birds fly low, and they don't move far in the course of the year!*

Bottom line- they are not easy to move!



- As a whole, the airport property looks pretty much like the surrounding areas.
- BUT this photo taken of utilization and distribution taken during the 2009 lekking season shows frequency of use, with yellow as the greatest concentration, and decreasing with distance from the lek.
- A closer look indicates that the grouse are attracted to the shorter grass in the RSA as it make for easier foraging, stays green from runoff, etc.
- and the snow melts quicker in the Spring, exposing vegetation, etc.

So, we have a relatively immobile, genetically isolated population that has become adapted to aircraft operations over time.



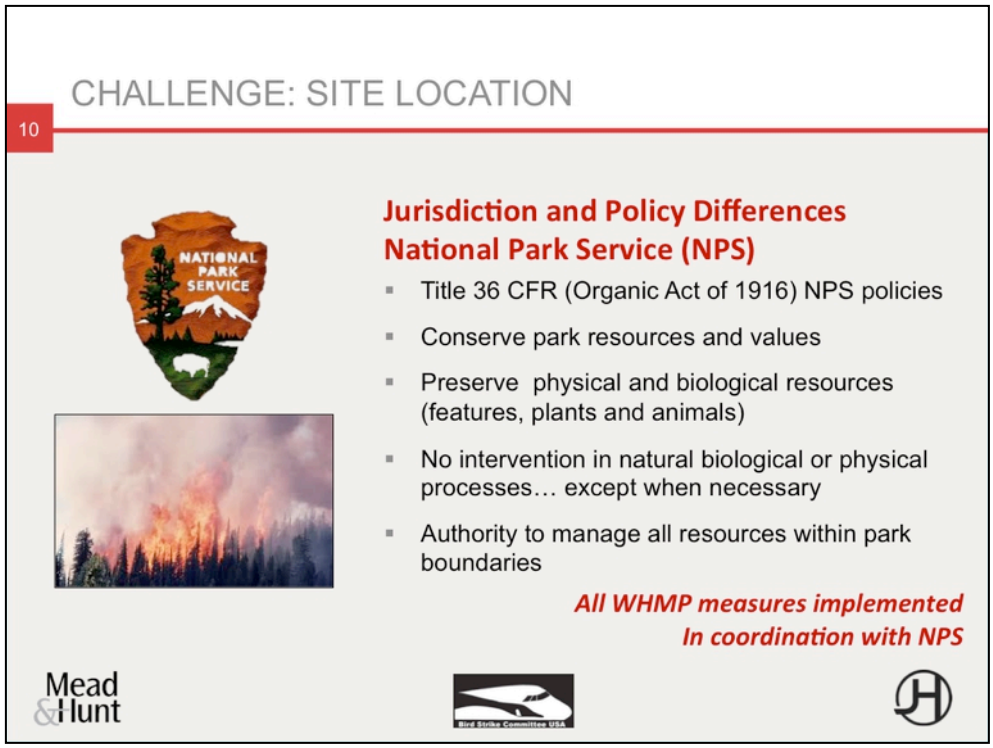
So now we know about the species-specific challenges, let's talk about geography and jurisdiction.

At western edge of GTNP, and many nearby jurisdications.

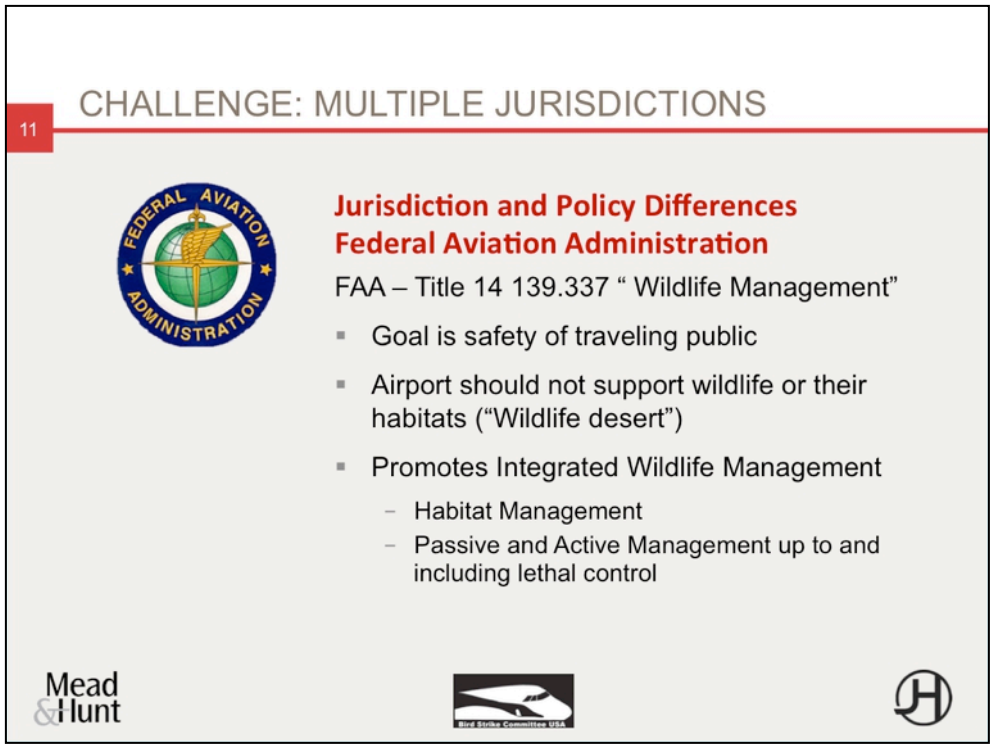
So that means, if the grouse is within the airport, FAA and NPS are responsible for managing it. If it flies west, then WY Game and fish is responsible for us.

Ad as we all know, different agencies have different policy goals…..

Lots of cooks in this kitchen!



- Let's talk for a quick second about those divergent policy goals.
- JAC operates under a lease agreement with the National Park Service (NPS), and NPS is involved in all decisions associated with the airport—from noise issues to facility changes.
- NPS policies focus on **maintaining natural conditions**, and it **discourages habitat modification and species management.**
- They do not want to intervene with biological processes—even fire.
- Have authority to manage all resources within the park,
- **AIRPORT's Landlord.**



- FAA requires airport operators to consider the risks posed by wildlife within 10,000 feet of aircraft movement areas, which is the critical zone. As shown here, several agencies are responsible for wildlife management within the critical zone, and they all have differing values and goals.
- Most of the steps that we incorporate in a traditional Ingegrated Wildlife Hazard Management Plan are not compatible with NPS policies.
- **Multiple agencies with multiple points of view needed to be involved in the WHMP.**

The JAC Airport Board understood that it needed the help of multiple agencies to come up with a plan, and it hired Mead & Hunt to act as a facilitator and manage the development of a plan that would consider all agency perspectives and also pass muster with the FAA…

SO our working group included membership from many agencies and also from Beringia south, who has studied the JAC sage grouse population for several years. They were VERY Helpful.

We met with all agencies whose logos you just saw for an 11-month period.

At first, policy differences were pronounced. But….

What was so amazing is that the potential factions and political differences were overtaken by the desire for sage grouse preservation, which in turn meant improved aviation safety.

We all knew that we would accomplish more working together.

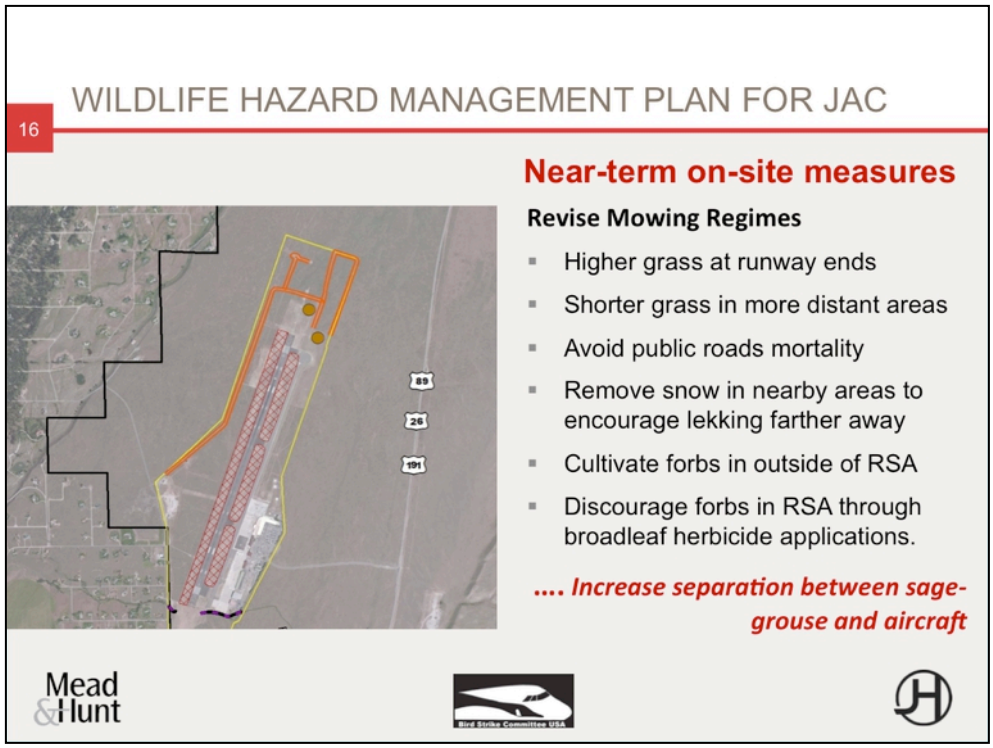
While many of the standard approach to integrated wildlife hazard management plans would apply, we decided to prepare a Sage Grouse Habitat Restoration Plan as a special appendix to the WHMP, and we presented the plan at a meeting that was open to the public.

Where controversy was anticipated, we found support.

On the traditional side, we included:

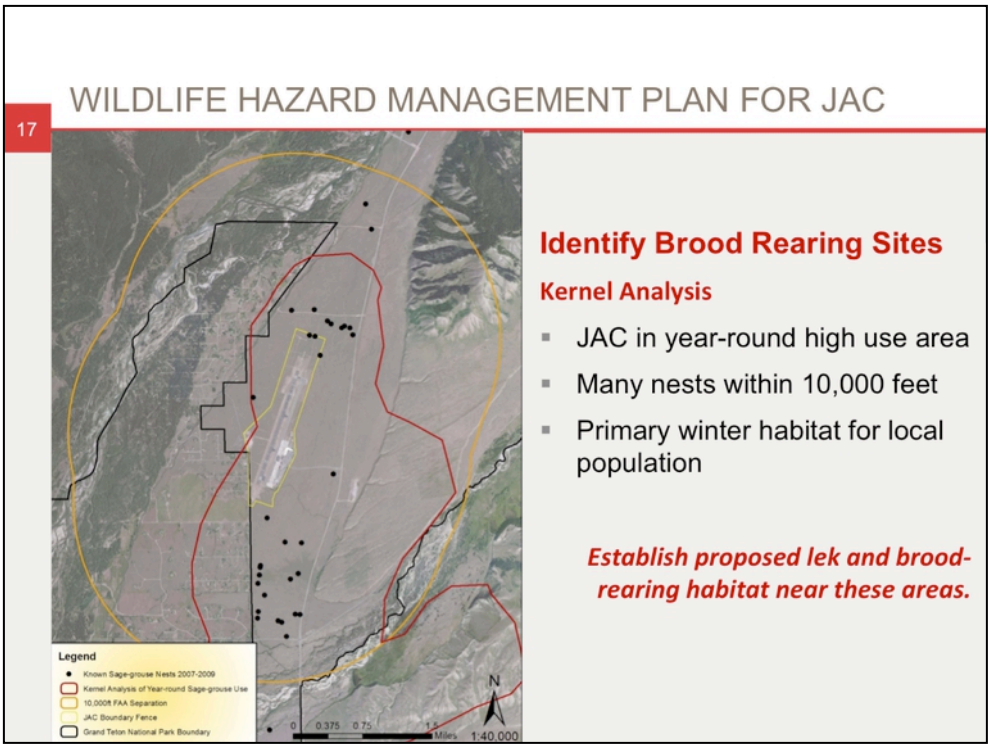
- Operational measures for airport staff, which includes good housekeeping measures and increased wildlife monitoring,
- On-site modification, such as eliminating poor drainage, installing, modifying landscaping,
- And site specific management of all species observed to pose a risk, not just grouse (ducks and other waterfowl, raptors, etc.)

So, it was pretty much all about the sage grouse! And that's what we're going to focus on!



The fist step was to reduce the habitats that appeared to be attracting the grouse.

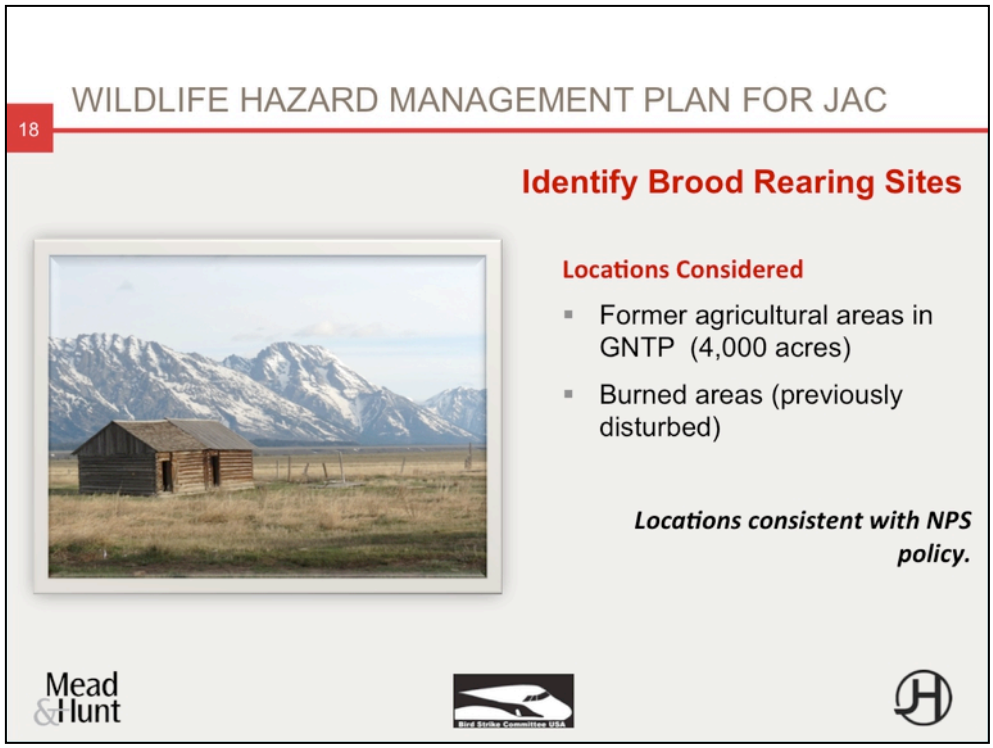
- Identified areas in which to mow grass outside of the RSA (Orange lines)
- Remove snow to encourage spring lekking outside of the RSA
- Cultivate forbs outside of the RSA



Step 2 was to identify sites farther away for Brood Rearing. So we performed a kernel analysis to identify nest locations near the airport —and there were loads of them!

Takeaway

We knew that if we enhanced habitat too far away (more than 10,000 feet, then the grouse would e unlikely to use them.



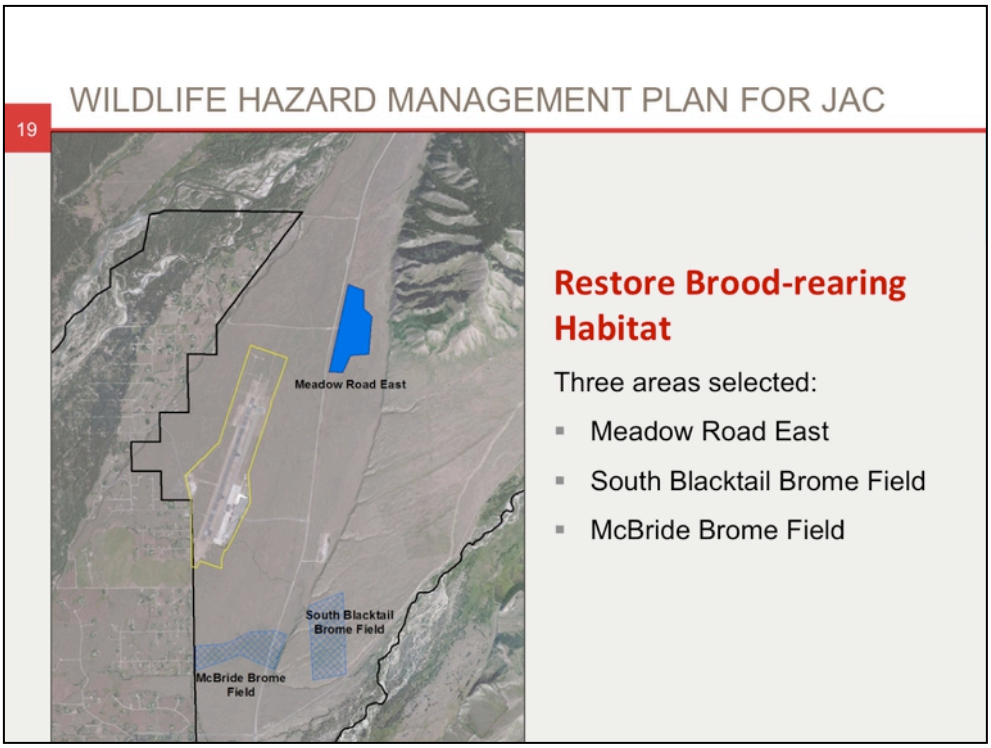
SO the next challenge was finding areas in which we would be allowed to modify habitat—remember, we're in the park and NPS doesn't like manipulating natural areas.

Ag areas

- However, there were some former areas near the airport that were formerly cultivated during the homestead era,
- Most of the former hayfields are dominated by a few exotic species, primarily smooth brome and bluegrass.
- Proposing the development of native species in disturbed, cultivated areas was consistent with park policy

Burned Areas

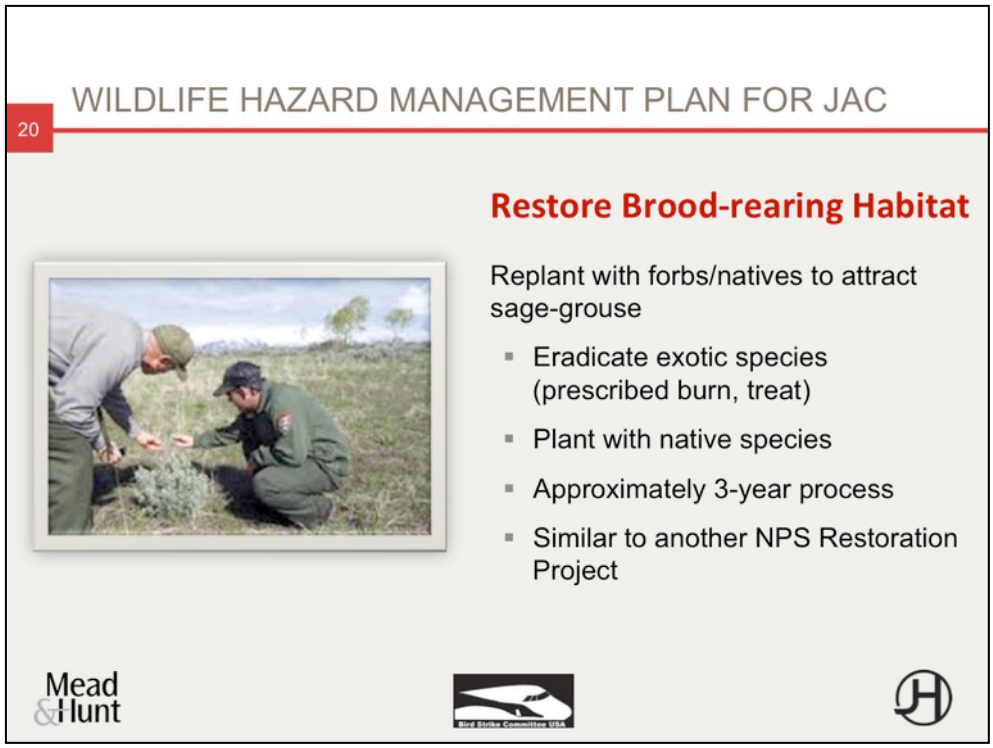
- Although NPS generally views wildfires and subsequent restoration as natural processes that do not require intervention, several of the burned areas near JAC included previously disturbed areas.
- Therefore, restoration in these areas would be compatible with NPS policy.



So, we identified three areas

- Meadow road east
- South Blacktail Brome Field
- McBride Brome Field

The areas provided little attractive habitat for sage grouse and much non-native veg. Restoring these areas would comply with the NPS Directive to promote native ecosystems and habitats.

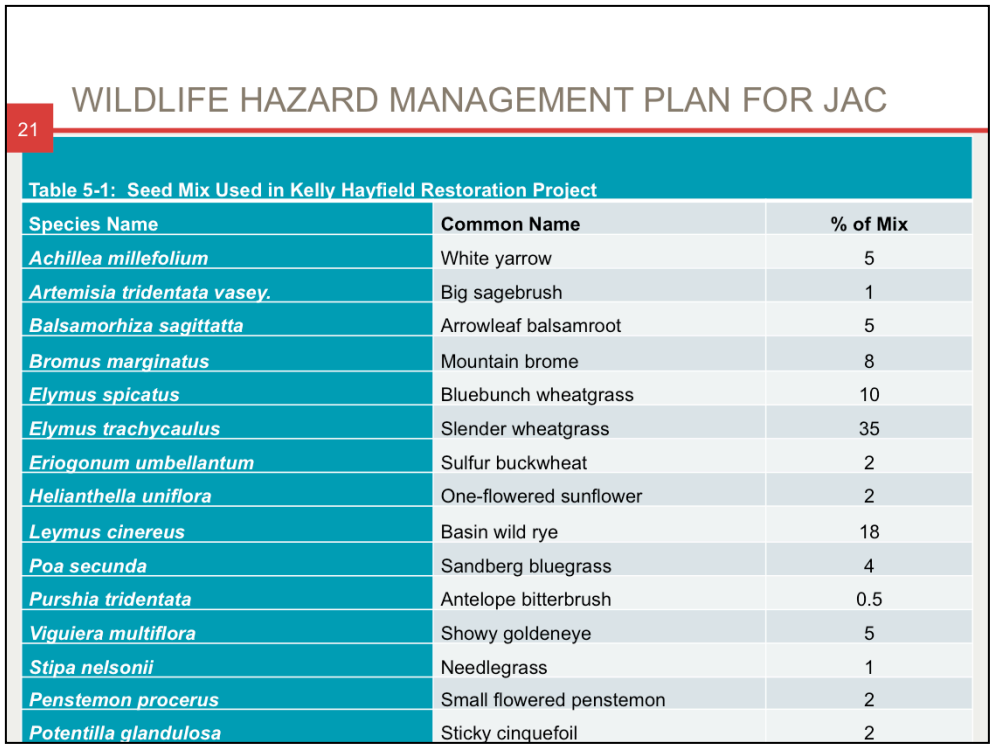


So, what was the plan?

Get rid of the exotics

Replant with natives.

Fortunately similar to similar NPS project known as the "Kelly Hayfields Project.



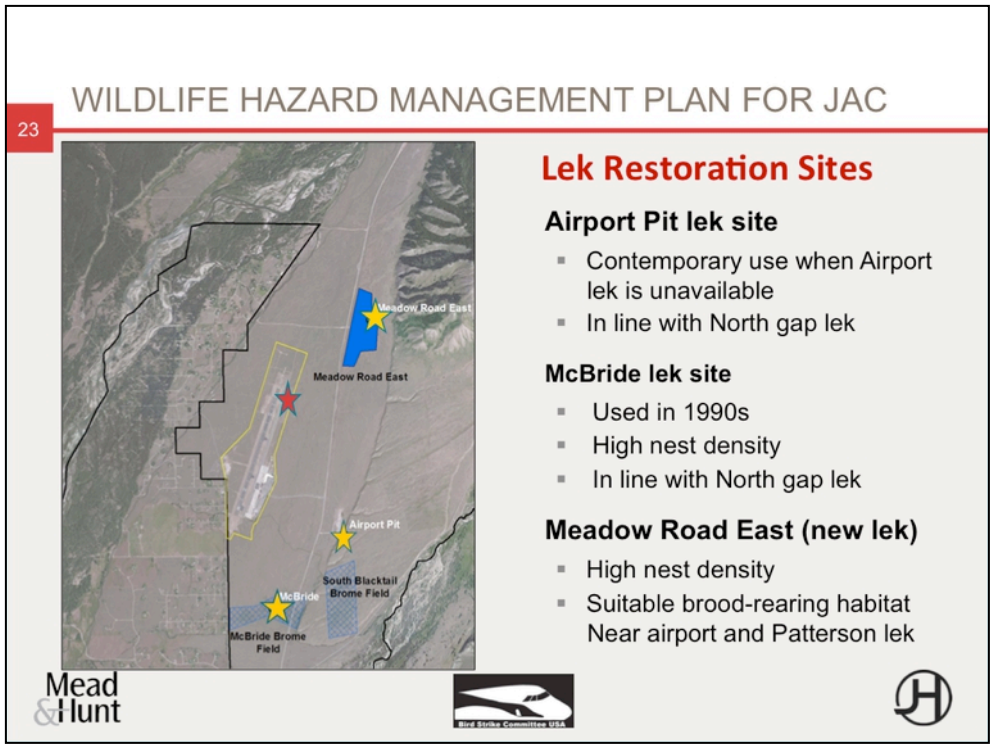
This is the species list used in the past to restore former AG areas and could be used restore native species

Achillea millefolium	White yarrow	5
Artemisia tridentata vasey.	Big sagebrush	1
Balsamorhiza sagittatta	Arrowleaf balsamroot	5
Bromus marginatus	Mountain brome	8
Elymus spicatus	Bluebunch wheatgrass	10
Elymus trachycaulus	Slender wheatgrass	35
Eriogonum umbellantum	Sulfur buckwheat	2
Helianthella uniflora	One-flowered sunflower	2
Leymus cinereus	Basin wild rye	18
Poa secunda	Sandberg bluegrass	4
Purshia tridentata	Antelope bitterbrush	0.5
Viguiera multiflora	Showy goldeneye	5
Stipa nelsonii	Needlegrass	
Penstemon procerus	Sflowered penstemon	2
Potentilla glandulosa	Sticky cinquefoil	2

SO once we identified potential areas that could be disturbed for brood rearing, we needed to identify new lek sites in close proximity. So we looked at

Historic (no longer used lek sites)

Places where we could create satellite leks (new sites near existing leks)



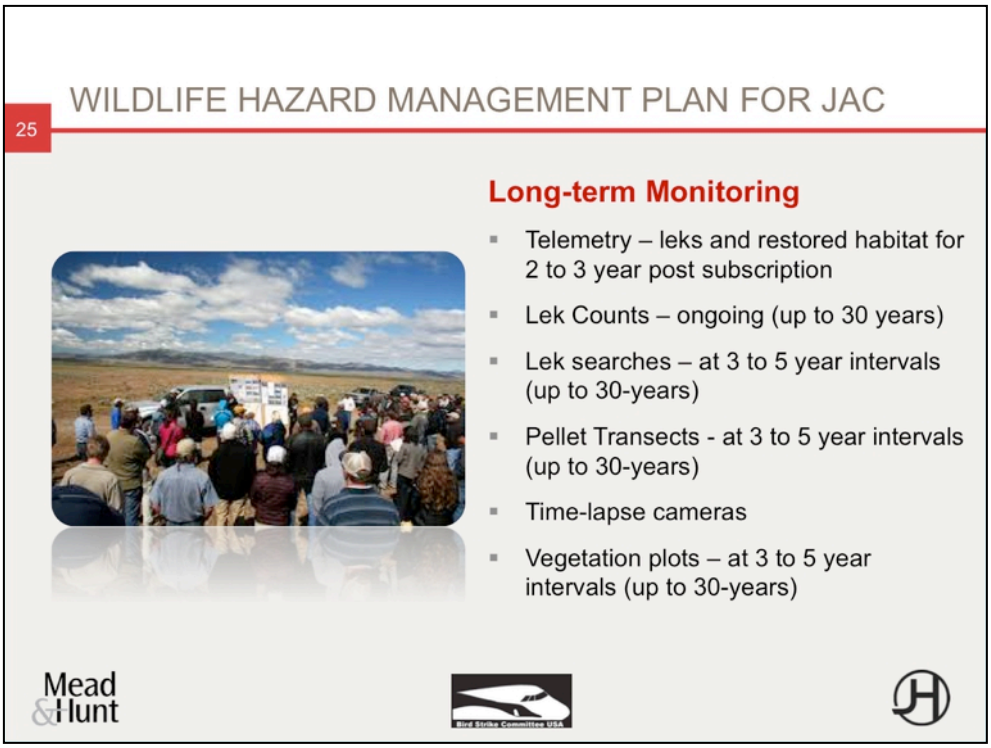
So, we identified a potential lek site near each brood rearing site

- The Airport Pit lek was still used a little bit,
- The McBride lek site was the site of a historic lek site (1980s)
- Meadow Road was brand new, but in an area that also had a high lek density

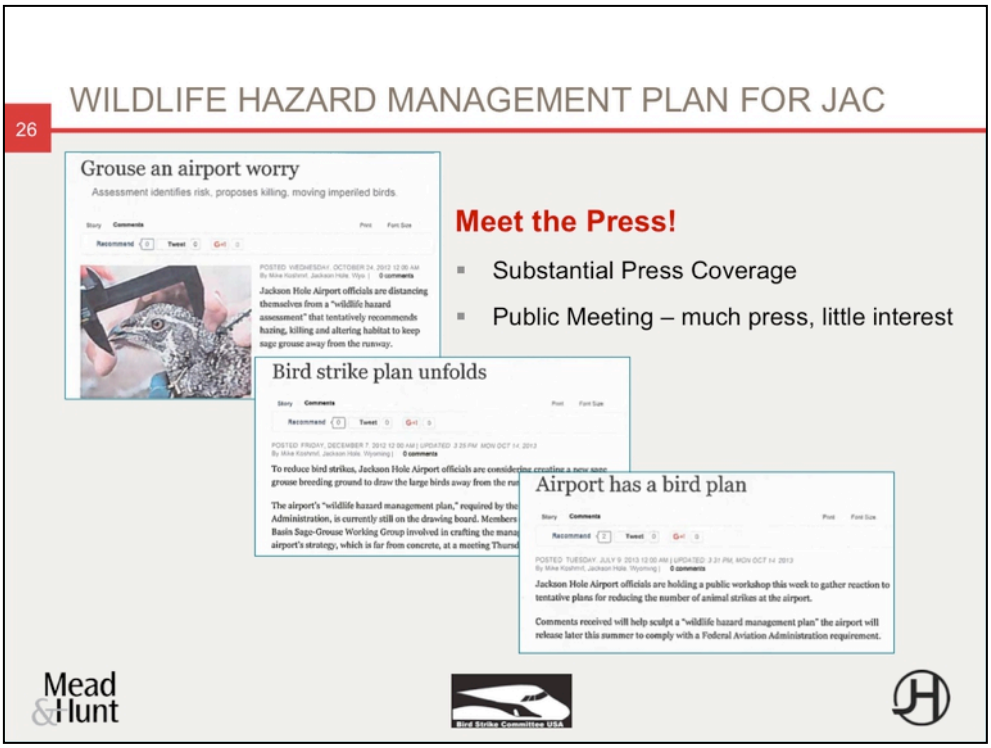
SO how would we do it>

The WHWG identified an initial three-year process for restoring the lek sites

- Remove exotics, replanting with new natives.
- Manipulate the landscape to provide a rounded area for dancing (a bit of earthmoving)
- Remove the snow a little earlier using black sand or plows, depending on location



And of course, Long-term monitoring, which is an expensive proposition!



So once we had a plan, we were done right?

I think it's important to bear in mind the community in which w e were working.

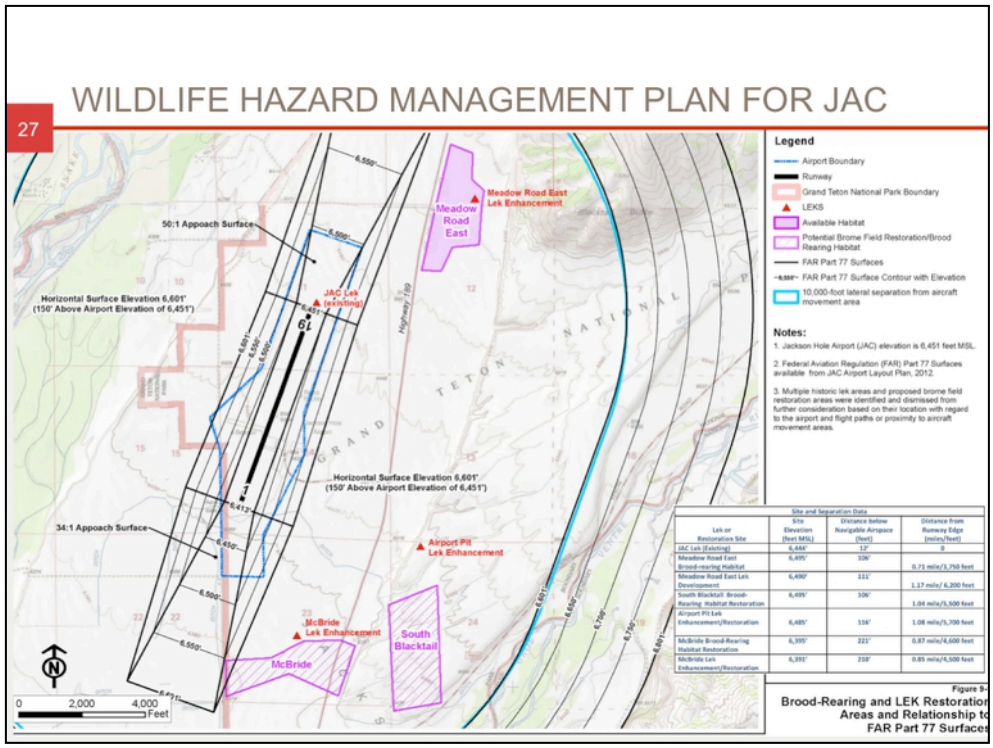
HUGE Interest in the project. SO we decided to hold public meeting Before sending the draft plan to FAA.

We had huge press coverage. Three front-page stories in the Jackson Hole newspaper. Reporters were calling us, it was crazy!

But when we held the meeting, only a handful of people showed up (less than 5!)

Most of those interested were already involved in the Working Group.

For example, the state reps were also integral members of the local sage grouse working group



So when all is said and done, this is what we ended up with in terms of increased separation.

his is what we ended up with in terms of separation and airspace.

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WILDLIFE HAZARD MANAGEMENT PLAN FOR JAC

A closer look…..

Site and Separation Data			
Lek or Restoration Site	Site Elevation (feet MSL)	Distance below Navigable Airspace (feet)	Distance from Runway Edge (miles/feet)
JAC Lek (Existing)	6,444′	12′	0
Meadow Road East Brood-rearing Habitat	6,495′	106′	0.71 mile/3,750 feet
Meadow Road East Lek Development	6,490′	111′	1.17 mile/ 6,200 feet
South Blacktail Brood-Rearing Habitat Restoration	6,495′	106′	1.04 mile/5,500 feet
Airport Pit Lek Enhancement/Restoration	6,485′	116′	1.08 mile/5,700 feet
McBride Brood-Rearing Habitat Restoration	6,395′	221′	0.87 mile/4,600 feet
McBride Lek Enhancement/Restoration	6,391′	210′	0.85 mile/4,500 feet

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As this table shows, the proposed plan incudes a much increased separation in terms of airspace and distance, but it falls well short of FAA's 10,000 foot area.

But for this particular species at this particular location, the FAA understood that a variance in its "No wildlife within 10,000 feet" rule was in order,

In short—we think that the plan is a triple win.

- It can benefit aviation by substantially increasing distances between the sage-grouse and the runway
- It generally complies with Park Services goals
- It has the potential to improve conditions for state and local stakeholders in their grouse conservation efforts because it will contribute structure and resources for those preservation efforts

- And more importantly, the sage grouse is the real winner,

WILDLIFE HAZARD MANAGEMENT PLAN FOR JAC

Why it Worked

- **Passion for Conservation** – regardless of jurisdiction
- **Commitment to Safety** – recognized need for extraordinary effort
- **Extraordinary Resources** – Available data, multi-agency support, financial resources for plan
- **Ability to Compromise**

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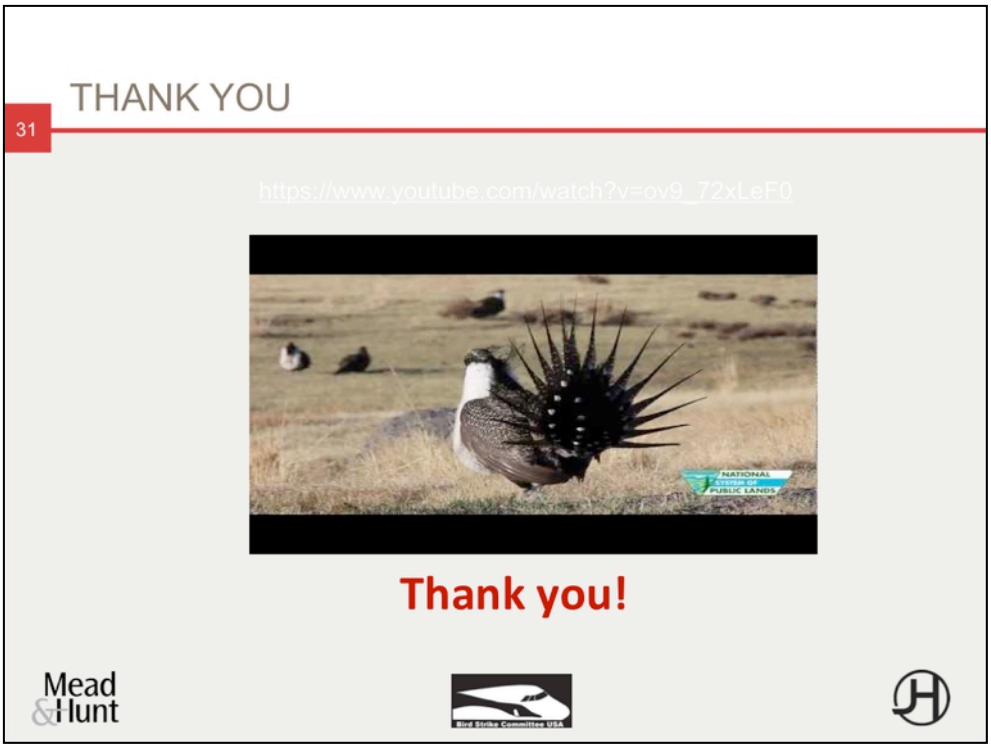
Why did it work?


THANK YOU
31
https://www.youtube.com/watch?v=ov9_72xLeF0
Thank you!
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Questions?