From:	Wiechman, Lief
To:	Jesse DElia
Subject:	Re: Metrics Table
Date:	Friday, October 25, 2013 3:35:13 PM
Attachments:	Conservation Measures Discussion Table v.1 (LW).xlsx

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attached...

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On Fri, Oct 25, 2013 at 7:30 AM, Wiechman, Lief <lief_wiechman@fws.gov> wrote:

> Jesse,
>
> Attached are 2 documents:
> The first is the tabular version of the metrics list we've been working on. I took a stab at creating a list of 'ACTIVITIES' and associated 'SUBACTIVITIES' as we discussed... that list can be refined with a scalpel or a chainsaw. While NV's comments are included in the Table version, not of UT's are (yet). Also, of note... some of the cells (specifically the metrics column) are rather wordy and will need to be trimmed down, but for review purposes, I just didn't want to lose any of teh meat in the transition / translation.
>
> The second is the updated list in the previous [bullet] format (Conservation Goal - Action - Metric). I've highlighted everything in yellow that currently IS NOT in the table version. Not everything had a metric attached and I didn't necessarily find a good fit to get the information in. This is maybe more of a design issue, but we can discuss what information we don't want to 'lose' in the transition from one format/setup to the tabular version.
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> Enjoy...
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>
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THREAT	ACTIVITY	SUBACTIVITY	METRIC	COMMENTS
Isolated populations, subpopulations / small population size	Research	Identify Seasonal Habitats	Accomplished / Available (Y/N)	Identify limiting habitats (if any exist) for isolated or small populations, and for subpopulations
		Identify Connectivity Cooridors	Accomplished / Available (Y/N)	Between Management Zones, PACs
		Movement Patterns	Accomplished / Available (Y/N)	Identify migratory status (1-stage, 2-stage, non-migratory)
		Genetic Analysis	Y/N	Genetic analysis to understand population structure
	Planning	Development Siting	Y/N	Establish protocols for project proponents to aid in pre-construction planning and siting of development (infrastructure, etc.) to avoid PACs, Preliminary Priority Habitat (PPH), and key seasonal habitats; or site properly (when avoidance is not feasible) to minimize impact and reduce fragmentation in PACs, PPH, and seasonal habitats.
		Conservation Strategy	Y/N	Strategy to maintain connectivity between subpopulations and between PACs and within Management Zones
		Avoidance	Report number of project proposals and amount of habitat (acres) that were rerouted because of protections put in place to maintain connectivity and prevent habitat fragmentation.	
		Avoidance	Report number of projects and amount of habitat (acres) lost and/or directly impacted by surface disturbing activities in sage-grouse habitat.	
	Sagebrush & Habitat Protection	Land Purchase	Acres PPH, PGH	Include only those easements that improve connectivity for small populations
		Conservation Easement	Acres PPH, PGH	
	Habitat Restoration		Acres PPH, PGH	Include only those restoration projects that improve connectivity for small populations
	Infrastructure		miles of fence marked in high-risk areas	Conduct fence marking to reduce collision in area identified as high-risk (using model Stevens et al. 2012).

	Translocation		# of sage-grouse translocated	
		Monitoring	Demographic information (survival, etc.) of translocated individuals	... in order to monitor the contribution to the host [sub]population.
	Harvest		Report number of licenses (or permits) sold (and return rates?)	Remove population loss through harvest by reduction or cessation of hunting seasons.
			Report number of individuals harvested (by age class and sex when possible).	
	Predator Control		Report number of predators killed and time span of occurrence.	Targeted predator control to protect small isolated populations that are vulnerable to near-term extinction.
			Pre- and post-predator treatment demographic rates (survival and nest survival) to analyze efficacy of plans in place.	Targeted predator control to protect small isolated populations that are vulnerable to near-term extinction.
Sagebrush Elimination	Research	Identify Seasonal Habitats	Y/N	Need to understand winter use areas
	Planning	Conservation Strategy		Emphasis on protecting large expanses of contiguous sagebrush, and reducing or eliminating the use of fire as a habitat management tool in low precipitation zones with low resiliency to annual grass invasion.
		Incentives	Report number of projects and amount (acres) of sage-grouse habitat created, improved, or restored AND amount of habitat in the rehabilitation process	Incentives for maintaining or enhancing habitat in PACs.
		Avoidance	Acres PPH, PGH	Report surface disturbing activities that were deferred from PACs, PPH

	Energy Development	Surface Disturbance	Report number of projects and amount of habitat (acres) lost and/or directly impacted by surface disturbing activities sage-grouse habitat	
	Habitat Protection		Report the changes (addition and subtraction) of particular seasonal habitats associated with listed treatments	Maintain a balance between nesting, brood-rearing, and winter habitat
		Land Purchase	Acres PPH, PGH	
		Conservation Easement	Numbers of easements, Acres PPH, PGH	If available, report the types of seasonal habitat(s) protected through agreement
Agricultural Conversion	Planning	Conservation Strategy		Strategy to avoid agricultural conversion of sage-grouse habitat
			Report [new] restrictions	Develop and/or enforce state restrictions on agriculture conversion on state lands
			Report zoning efforts that reduce conversion	Work with counties and states to restrict and/or reduce agriculture conversion in planning and zoning efforts.
	Habitat Protection	Land Purchase	Acres PPH, PGH	
		Conservation Easement	Report the number of easements and the associated acres protected as a result of the agreement	
		Incentives		Protect existing habitats on private lands through conservation agreements

Fire	Research	Identify Seasonal Habitats	Accomplished / Available (Y/N)	This will help in appropriate prepositioning of resources and prioritizing areas for suppression and restoration
		Weather Augmentation	Projects conducted (Y/N)	Utilize weather augmentation (cloud seeding) in rehabilitation efforts post fire in strategic locations where a modest increase could improve germination success significantly.
		Site Descriptions / State and Transition Models	Areas and acres identified for restoration	Areas that are in an invaded state that will likely transition to a cheatgrass monoculture if a disturbance occurs and are located within or near sage-grouse habitat should be prioritized for restoration efforts to increase resistance and resilience.
		Conservation Strategy	[Include metrics for Presuppression, Suppression, Restoration]	
		Rehabilitation Plans		Develop plans and acquire the necessary resources (e.g. seed collection, seeding equipment pools, trained staff, etc.) for post fire rehabilitation activities and warehouse viable seed stockpiles.
		Incentives	[Include metrics for Presuppression, Suppression, Restoration]	

	Planning		Report cross-jurisdictional agreements	Establish and implement a framework across all land jurisdictions for pre-suppression actions to minimize ignitions and alter fuel conditions in order to avoid, to the greatest extent possible, large damaging conflagrations. Complete landscape level habitat assessments in, and in proximity to, priority sage-grouse habitat areas to identify those habitat areas that are at the highest risk of wildland fire and subsequent conversion to invasive annual grasses.
			Report pre-suppression [new] planning efforts	Develop prioritized pre-suppression plans that focus on priority sage-grouse habitat in and near PACs, similar to the Wildland Urban Interface planning analysis.
			Report suppression [new] planning efforts	Identify and develop suppression plans, including mapping of sage-grouse habitat in or near PACs, to improve initial attack suppression actions.
			List funding for pre-supression activities	
	Fire Presuppression	Seasonal Closure	Report closures: Location, timing	Seasonal closure to reduce fire risk
		Vegetation Management	List Project and associated acres	Manage vegetation to reduce fuel loads in or near PACs or important habitat
		Fuel Breaks / Fuel Management	Report fuel load removals / treaments and associated acres	
			Report siting and placment of fire breaks	Investigate possible use of anthropogenic features, such as transmission lines, trails, previous fire perimeters, utility right -of -ways, etc. as fire breaks so as to not create new disturbances on the landscape. Strategic placement of new fire breaks, green strips, and fuels reduction treatments in and near PACs.

	Fire Suppression	Preposition Resources	Report placement (location) and amount of resources placed for fire supression	Pre-positioning available resources to suppress fire in key habitats with forecasted as high threat (this may be informed by the identification of seasonal and limiting habitats in each PACs).
			Report cross-jurisdictional agreements	Identify PACs / subpopulations that span multiple jurisdiction to aid in the development/creation of those agreements
	Fire Restoration	Aerial seeding	Acres seeded in PPH, PGH	Encourage use of local, native or locally-adapted seed mixes, whenever possible, so seeded species can compete. If local, native seeds are unavailable or impractical for site conditions, prioritize use of native and then locally-adapted seeds. Strategic placement of restoration efforts, likely success, may restore naturally, etc. Encourage use of appropriate local seed mixes, natives can compete.
		Drill seeding	Acres seeded in PPH, PGH	
		Planting plugs	Acres seeded in PPH, PGH	
		Burn Severity Assessments		Complete burn severity assessments and identify ecological site potential in, and in proximity to, PACs to identify the areas with the highest potential for restoration of habitat functions following fires. Focus rehabilitation efforts on areas of highest potential success based ecological site conditions (soils, precipitation zone, and geography).
Conifer Encroachment	Planning	Conservation Strategy		Priority areas for conifer removal identified?
		Mechanical Conifer Removal (Stage 1&2)	Report number of acres of habitat treated for conifer removal in PACs and PPH.	
			Report seasonal habitat(s) treated using conifer removal.	

	Conifer Removal		Report amount of conifers removed from perspective of fire fuels management.	
		Mechanical Conifer Removal (Stage 3)	Report number of acres of habitat treated for conifer removal in PACs and PPH.	
		Prescribed Fire (Stage 3)	Report number of acres of habitat treated for conifer removal in PACs and PPH.	
		Natural Fire (Stage 3)	Report number of acres of habitat burned in Conifer / sagebrush mixed habitat in and near PACs and PPH	
			Report previously unoccupied habitat that has become occupied as a result (in part) of conifer removal to aid in reporting effectiveness of removal efforts.	
Noxious weeds / annual grasses / invasive species	Research	Development and use of ACK-55		
		Develop protocols for rehabilitation efforts that are more effective, more often		
	Planning	Mapping	Location and size (acres) of new and existing (if known) infestations	Create sole source mapping, treatment, revegetation, etc. on both public and private lands.

	Planning	Mapping	Report known allotment composition, where presence (or absence) of invasives have been confirmed.	Evaluate allotments that are predominately Wyoming big to determine how grazing management practices are promoting native perennial grass and forb community health as well as maintaining or enhancing soil biotic crusts Identify allotments with cheatgrass and/or other invasives to minimize transfer of livestock to 'uninvaded' parcels.
	Habitat (Vegetation) Treatment		Report strategic grazing practices, and the amount (acres), identified to reduce the threat of invasives and any related fire-prevention benefit.	Where cheatgrass is predominantly present within the understory of sagebrush, utilize targeted grazing and potential seeding to reduce the threat of catastrophic fire and increase the potential resiliency of the understory.
Energy development	Planning		Report all new development (projects) and amount of disturbance (acres) that is sited outside PACs and PPH.	Site planning outside of PACs, PPH, and important seasonal habitat to avoid disturbance. Avoid conflict by siting associated facilities (and activities) in non-habitat wherever possible.
			Report all lease sales are conducted outside of PACs and PPH as a result of restriction and protection placed in PACs and PPH.	
			Report all disturbances that are relocated outside of disturbance buffers as a result of disturbance buffer protections around leks (as well as nesting, and winter habitat).	On-site planning to avoid disturbing PACs, leks.
			Report tall structures removed	
			Report energy development relates structures that are collocated as a result of GRSG protections	

			Report transmission lines and pipelines (miles) buried in and near PACs, PPH, and PGH.	
			Report all in-process mitigation projects as well as the state/stage at which the process is in and the acres being restored.	
			Report weed control efforts (acres).	
Mining	Planning	Conservation Strategy	Report all new development (projects) and amount of disturbance (acres) that is sited outside PACs and PPH.	Site disturbance, development, and associated mining infrastructure (railroad lines, yards, spurs, outside of GRSG habitat).
			Report all lease sales are conducted outside of PACs and PPH as a result of restriction and protection placed in PACs and PPH.	Strategic planning of lease sales outside of PACs
			Report all disturbances that are relocated outside of disturbance buffers as a result of disturbance buffer protections around leks (as well as nesting, and winter habitat).	On-site planning to avoid disturbing PACs, leks.
			Report amounts of disturbance (using disturbance calculation tool).	
	Habitat Restoration		Report all in-process mitigation projects as well as the state/stage at which the process is in and the acres being restored.	

Infrastructure	Planning		Report all new development (projects) and amount of disturbance (acres) that is sited outside PACs and PPH.	Site planning outside of PACs, PPH, and important seasonal habitat to avoid disturbance. Avoid conflict by siting associated facilities (and activities) in non-habitat wherever possible.
			Report all lease sales are conducted outside of PACs and PPH as a result of restriction and protection placed in PACs and PPH.	
			Report all disturbances that are relocated outside of disturbance buffers as a result of disturbance buffer protections around leks (as well as nesting, and winter habitat).	On-site planning to avoid disturbing PACs, leks.
			Report tall structures removed	
			Report energy development relates structures that are collocated as a result of GRSG protections	
			Report transmission lines and pipelines (miles) buried in and near PACs, PPH, and PGH.	
			Report all in-process mitigation projects as well as the state/stage at which the process is in and the acres being restored.	
			Report weed control efforts (acres).	

	Habitat Restoration		Report all in-process mitigation projects as well as the state/stage at which the process is in and the acres being restored.	
		Structure Removal	Report all infrastructure removed (miles, structures) from sage-grouse habitat, especially in PACs and PPH.	
Grazing / range management			Report number of allotments and associated acres that remained closed during breeding and nesting seasons.	Establish and enforce timing restrictions / seasonal restrictions in PACS, PPH.
		Seasonal Closures	Report the miles of roads closed seasonally that may reduce impacts (direct and indirect) to sage-grouse.	Implement seasonal road closures associated with range management activities.
	Sagebrush and Habitat Protection		Report number of landowners, amount (acres) or habitat (type), and the associated conservation measures agreed upon to CCAA.	Provide land-owners with opportunities to enroll in large-scale CCAAs.
Free-roaming equids	Research		Research birth control options as well as techniques to administer contraceptives herds	
			Establish consistent methodology for surveys; Conduct counts and surveys of equids (obtain updated population estimates).	
	Planning	Population Control	Report number of horses/burros that were given contraceptives	
		Monitoring	Report the AML levels each year	

Recreation		Seasonal closures	Report amount (miles) of recreation trails with timing and seasonal restrictions	Seasonal closures as necessary; set and enforce seasonal and timing restrictions on all recreational trails in sage-grouse habitat during breeding, nesting, and brood-rearing seasons.
			Report amount (miles) of recreational trails with seasonal closures	Seasonal closures as necessary; set and enforce seasonal and timing restrictions on all recreational trails in sage-grouse habitat during breeding, nesting, and brood-rearing seasons.
		Enforcement	Report actions taken to close trails to measure efficacy of closures.	
	Sagebrush and Habitat Protection		Report amount of trails closed, reclaimed, and rerouted inside to outside of PPH, and 0.6-mile disturbance buffer near leks.	Establish 4.0-mile disturbance buffer in nesting habitat in PACs and PPH.
			Report designations of OHV areas outside of PACs and PPH	
Urbanization	Sagebrush and Habitat Protection	Conservation Easement	Report the number of easements and the amount (acres) of habitat in potentially residential areas that protect sage-grouse habitat and the type (seasonal) of habitat protected.	Attempt to create easements in lieu of development with land owners to decrease the amount of housing and anthropogenic infrastructure development on the landscape
		Land Purchase	Report the number land swaps and/or conservation leases and the amount (acres) of habitat in potentially residential areas that protect sage-grouse habitat and the type (seasonal) of habitat protected.	