

Forest Plan: Chapter 4 Monitoring and Evaluation

Table 4 – 2: Monitoring Questions and Indicators

Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability	
2.1 – Restore water quality and soil productivity to improve health of watersheds impaired by past land use practices and mining activities. Manage activities on NFS land to maintain or enhance water quality and soil productivity.	2.1a – Restore the dimension, pattern, and profile of streams where channel and floodplain morphology has been altered.	Are altered, non-functioning channels and floodplains being improved on the Forest? (NEW)	How many miles of stream have been treated to restore dimension, pattern, and profile? How many miles of stream have been treated to improve ecological function? (EDITED)	Every 4 years	Every 4 years	B	
	2.1b – Enhance water quality in the Monday Creek, Sunday Creek, Symmes Creek, Raccoon Creek, and Pine Creek watersheds by reducing acid mine discharges and decreasing sediment loads.		Has water quality been enhanced in watersheds on the Forest that were impaired by past land use practices or mining activities? (NEW)	What is the current geo chemistry profile of these creeks?	Every 4 years	Every 4 years	A
				What geo chemistry parameters have changed by reducing and/or treating acid mine discharges?	Every 4 years	Every 4 years	A
				How many acid mine discharges have been treated?	Biennially	Every 4 years	B
				How many subsidence features have been treated?	Biennially	Every 4 years	B
				How many miles of stream have free-flowing water where surface flow was restricted?	Every 4 years	Every 4 years	B
		Is the Forest maintaining or restoring soil productivity? (NEW)	How many acres of NNIS plants were treated that alter soil chemistry? (NEW)	Biennially	Every 4 years	B	
		Are management activities altering the ecological functioning of the soil by creating excessive detrimental impact? (NEW)	Biennially	Every 4 years	B		
	3.1a – Restore wetland habitat where wetland hydrology, soils, or vegetation have been modified by past land uses.	Are wetland habitats being restored on the Forest? (NEW)	How many acres of wetland habitat were restored or enhanced?	Biennially	Every 4 years	B	

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<p>3.1 – Promote healthy riparian and aquatic ecosystems that sustain ecological processes and functions and a variety of plant and animal communities, including viable populations of native and desired non-native species.</p>	<p>3.1b – Improve habitat along streams for aquatic and riparian-dependent species.</p>	<p>Has habitat for aquatic or riparian dependent species improved along and within streams? (NEW)</p>	<p>How many miles of stream were treated to improve or restore habitat for aquatic and riparian-dependent species?</p>	<p>Biennially</p>	<p>Every 4 years</p>	<p>B</p>
			<p>How many permanent long term aquatic ecological unit monitoring sites were established? (ELIMINATE – other monitoring efforts completed by partners and state agencies can be used)</p>	<p>Annually</p>	<p>Every 5 years</p>	<p>B</p>
			<p>What physical or biotic parameters have changed at the permanent long term aquatic ecological monitoring sites? (EDIT - do not tie to long-term sites, since we will work with partners to track changes at project sites, too)</p>	<p>Biennially</p>	<p>Every 4 years</p>	<p>A</p>
	<p>3.1c – Reduce sedimentation and improve passage for aquatic and semi-aquatic organisms at Forest development roads and Forest Service recreation trail crossings.</p>	<p>Is sedimentation reduced and passage of aquatic species improved? (NEW)</p>	<p>What is the current number of Forest Development Road crossings and recreational trail crossings on NFS land? (ELIMINATE – not a useful indicator, since most road/stream crossings are on roads under other jurisdictions)</p>	<p>Every 5 years</p>	<p>Every 5 years</p>	<p>B</p>

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			How many crossings were improved? How many stream crossings were improved for aquatic organism passage and/or sedimentation? (EDITED)	Biennially	Every 4 years	B
			How many crossings were eliminated? How many miles of habitat were opened up for aquatic dependent species? (EDITED)	Biennially	Every 4 years	B
	3.1d – Improve aquatic habitat in ponds and lakes.	Is habitat in ponds and lakes improving on NFS lands? (NEW)	How many ponds or lakes were treated to improve aquatic habitat?	Biennially	Every 4 years	B
4.1 – Promote healthy terrestrial ecosystems that sustain a variety of plant and animal communities, including viable populations of native and desired non-native species.	4.1a – Provide adequate habitat to support viable populations of Management Indicator Species. (ELIMINATE – do not mention in the Monitoring Plan)		Are population trends and habitat trends of management indicators consistent with forest plan expectations? (ELIMINATE – management indicators are no longer a part of Planning Rule requirements.)	Annually	Every 5 years	AB
			What is the relationship between habitat and population trends? (ELIMINATE – management indicators are no longer a part of Planning Rule requirements.)	Every 5 years	Every 5 years	AB
	4.1b – Promote restoration and maintenance of the oak-hickory ecosystem by improving conditions for oak regeneration in the Historic Forest and HFO Management Areas. (ELIMINATE – do not mention in the Monitoring Plan)		How many acres were treated to encourage oak regeneration? (ELIMINATE – This question is almost a duplicate of one in section 6.1)	Annually	Every 5 years	B

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	4.1c – Encourage the establishment of all-aged hardwood forest and hardwood-pine forest communities with structurally diverse canopy layers to maintain forest health and increase structural diversity.	Are uneven-aged hardwood and hardwood-pine forests being developed on the Forest? (NEW)	How many acres of hardwood or hardwood/pine forest communities were treated to encourage the establishment of uneven-aged conditions?	Biennially	Every 4 years	B
		How are management activities providing for extensive tracts of mature interior hardwood forest composed of a well-developed understory and upper-canopy layer that includes large trees and canopy gaps? (NEW)	What are the trends in cerulean warbler abundance, based on species monitoring protocols? (NEW)	Monitored every 3 years; reported in the following Monitoring Report	Monitored every 3 years; reported in the following Monitoring Report	A B
	4.1d – Create early successional hardwood or hardwood-pine habitat, interspersed within mid- and late-successional forest habitat to: provide breeding habit for shrubland-dependent species and increase production of wildlife foods such as soft and hard mast and insects.	How are management activities providing for a variety of structural classes (e.g. early successional forest, mid-successional forest, and late-successional forest) intermixed and dispersed in a mosaic type condition at the small and large scale? (NEW)	How many acres of early successional forest habitat were created?	Biennially	Every 4 years	B
			How are those acres distributed across the Forest Shrubland Mosaic? (NEW)	Biennially	Every 4 years	B
			What are the trends in ruffed grouse abundance, based on species monitoring protocols? (NEW)	Monitored every 3 years; reported in the following Monitoring Report	Monitored every 3 years; reported in the following Monitoring Report	A B
	4.1e – Regenerate existing native pine and pine-hardwood mixed communities.	Are existing native pine and pine-hardwood forests being restored on appropriate sites on the Forest? (NEW)	How many acres of pine or pine-hardwood communities were treated?	Biennially	Every 4 years	B
		Is 5-10 percent of the grassland or grassland/shrubland habitat in the Grassland Forest Mosaic being improved annually? (NEW)	How many acres of grassland habitat were improved or maintained?	Biennially	Every 4 years	B

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	4.1f – Annually, improve or maintain 5 to 10 percent of the existing grassland and grassland/shrubland habitat acreage in the Grassland Management Area.	How are management activities providing for extensive areas of tall, dense grass, consisting of standing dead vegetation and well developed litter with sparse to no woody shrub vegetation? (NEW)	What are the trends in Henslow’s sparrow abundance, based on species monitoring protocols? (NEW)	Monitored every 3 years; reported in the following Monitoring Report	Monitored every 3 years; reported in the following Monitoring Report	A B
	4.1g – Establish and maintain permanent forest openings (herbaceous vegetative cover or mix of herbaceous vegetation and shrubs) on a variety of sites, including ridge tops, mid-slope benches and valley bottoms, preferably where access by machinery is possible.	Are permanent forest openings being created and maintained on a variety of sites on the Forest? (NEW)	How many acres of herbaceous or herbaceous-shrub habitat were created?	Biennially	Every 4 years	B
			How many acres of herbaceous or herbaceous-shrub habitat were maintained?	Biennially	Every 4 years	B
	4.1h – Construct waterholes and ephemeral wetlands to supplement limited water sources, enhance local biodiversity, and enhance aquatic insect production.	Are waterholes and ephemeral wetlands being constructed on the Forest to enhance local biodiversity and aquatic insect production? (NEW)	How many waterholes or ephemeral wetlands were constructed or enhanced ? (EDITED)	Biennially	Every 4 years	B
	4.1i – Install artificial nesting or roosting structures to supplement natural cavities or snags when they are short in supply or to enhance wildlife-viewing.	Are artificial nesting or roosting structures being installed when there is an opportunity to enhance wildlife-viewing on the Forest? (NEW)	How many artificial nesting structures were installed?	Biennially	Every 4 years	B

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Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
5.1.1 – Retain or develop Indiana bat roosting and foraging habitat; protect all known Indiana bat hibernacula.		Is the Forest using active management to develop short-term and long-term quality Indiana bat roosting and foraging habitat? (NEW)	How many acres of potentially suitable Indiana bat habitat were protected or improved? How many acres of potentially suitable Indiana bat habitat were actively improved? (EDITED)	Biennially	Every 4 years	B
			Are known hazard trees removed during the appropriate time of year? (MOVED from transportation section)	Biennially	Every 4 years	B
	5.1.1a – If additional Indiana bat hibernacula are discovered on NFS land, install bat-friendly gates to prevent unauthorized entry.	Are known hibernacula being protected from unauthorized entry? (NEW)	How many bat-friendly gates were installed on known Indiana bat hibernacula?	Biennially	Every 4 years	B
5.1.3 – Cooperate in efforts to reintroduce the American burying beetle.		Have reintroductions of the American burying beetle been successful? (NEW)	What cooperative efforts were accomplished to achieve the reintroduction of the American burying beetle? Have American burying beetles been found? (EDITED – the reintroductions are completed and now being monitored)	Annually monitor, report biennially	Every 4 years	B
5.1.4 – Actively manage known populations of running buffalo clover to maintain appropriate habitat conditions.	5.1.4b – Conduct annual monitoring of known running buffalo clover populations and adjacent areas to identify potential risks or management needs.	Were there any changes to known running buffalo clover populations and were any potential risks identified and mitigated?	Were there any changes to known running buffalo clover populations and were any potential risks identified and mitigated? What are the current RBC population numbers? (EDITED)	Annually monitor, report biennially	Every 4 years	B
			How many risks to the RBC populations were identified and mitigated? (EDITED)			

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Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
<p>5.2.1 – Protect bald eagle communal night roosts, daytime concentration sites, and occupied breeding territories.</p>	<p>5.2.1a – Conduct a minimum of three annual winter searches to locate any previously unknown communal night roosts or bald eagle concentrations.</p>	<p>Is bald eagle habitat being protected? (NEW)</p>	<p>How many mid-winter bald eagle searches were conducted?</p>	<p>Annually monitor, report biennially</p>	<p>Every 4 years</p>	<p>B</p>
			<p>How many bald eagles were observed?</p>	<p>Annually monitor, report biennially</p>	<p>Every 4 years</p>	<p>B</p>
			<p>How many bald eagle nests are being monitored within the Forest Proclamation Boundary and are they active? (NEW)</p>	<p>Annually monitor, report biennially</p>	<p>Every 4 years</p>	<p>B</p>
<p>6.1 – Provide forest vegetation characteristics, from understory layers to the tree canopy, that meet the habitat needs of desired native and non-native plant and animal species.</p>	<p>6.1a - Use all available silvicultural treatments, including pre-commercial and commercial thinning, prescribed fire, shelterwood harvests, and improvement cutting to promote the maintenance and restoration of the oak-hickory ecosystem.</p>	<p>Are oak-hickory forests being maintained and restored on the Forest? (NEW)</p>	<p>How many acres are being treated with varying management actions that will likely result in the maintenance and restoration of the oak-hickory ecosystem?</p>	<p>Biennially</p>	<p>Every 4 years</p>	<p>B</p>
	<p>6.1b – Use commercial timber sales and stewardship contracts to accomplish wildlife habitat objectives. (ELIMINATE – do not mention in the Monitoring Plan)</p>		<p>How many acres are being treated through commercial timber sale operations and / or stewardship contracts that will likely meet the objectives of improving wildlife habitat? (ELIMINATE – this question was found not to be useful, since the purpose of most vegetation treatments on the WNF is to meet habitat objectives)</p>	<p>Annually</p>	<p>Every 5 years</p>	<p>B</p>

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Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
6.2 – Reintroduce fire into fire-adapted ecosystems to conserve biodiversity and promote ecosystem structure and function closer to the historic range of variability.	6.2a – Use prescribed fire to conserve fire-adapted plant and animal biodiversity and to maintain and restore mixed oak and native pine ecosystems.	Is the Forest using prescribed fire to conserve fire-adapted plant and animal biodiversity and to maintain and restore oak and native pine ecosystems? (NEW)	How many acres are being treated with prescribed fire to conserve fire-adapted plant and animal biodiversity, and to maintain and restore mixed oak and native pine?	Biennially	Every 4 years	B
	6.2b – Use prescribed fire and mechanical treatments to modify current fuel composition, and fire frequency, severity and pattern.	Is the Forest using prescribed fire and mechanical treatments to improve or maintain the fire regime condition class? (NEW)	How many treated acres improved fire regime condition class?	Every 4 Years	Every 4 Years	B
	6.2c – Use prescribed fire and mechanical treatment to maintain a current fire regime condition class that represents a historic range of variability.		Has the fire regime been maintained in the desirable condition class?	Every 4 Years	Every 4 Years	B
		Is the Forest providing opportunities for the sustainable collection of Special Forest Products? (NEW)	How many acres of the Forest are designated suitable for collecting Special Forest Products? (NEW)	Every 4 Years	Every 4 Years	B

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Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
<p>6.3 – Provide opportunities for the collection and use of special forest products. Manage removal of special forest products and monitor this use to sustain viable populations and future yields. Increase public awareness of special forest product harvesting impacts on populations and their ecosystems.</p>			<p>How many permits are issued and what are the reported harvests in each year? Are yields per permit increasing or decreasing? How many Special Forest Product permits are issued per Unit and across the Forest annually? (EDITED – the Forest will no longer require permits to be returned with the harvest reported.)</p>	Biennially	Every 4 Years	B
		<p>Are viable populations of ginseng being sustained on the Forest? (NEW)</p>	<p>What are trends of ginseng plant size and distribution on NFS lands? What are the population trends of ginseng at monitoring plots? (EDITED)</p>	Annually monitor a portion of sites, reported biennially	Every 8 Years	A
			<p>How many ginseng permits are issued per Unit and across the Forest annually? (NEW)</p>	Biennially	Every 4 Years	B

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Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
<p>7.1 – Limit the effects of insects, diseases, and wildfire on forest vegetation and wildlife to within the range of disturbances that occurred in forest ecosystems prior to the arrival of non-native insects and diseases. Manage non-native invasive species (NNIS) populations using prevention, suppression, and restoration techniques to protect and restore natural communities on the Forest.</p>	<p>7.1a – Maintain an inventory of NNIS insects and diseases affecting or potentially affecting NFS resources. (ELIMINATE – do not mention in the Monitoring Plan)</p>		<p>How many acres of the Forest is inventoried for NNIS insects and diseases and when was it inventoried? (ELIMINATE – inventorying is an important step in the management of insects and diseases, but the number of acres treated and degree of success are the key pieces to include in the Monitoring Report)</p>	<p>Annually</p>	<p>Every 5 years</p>	<p>A</p>

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Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
	<p>7.1b – Cooperate with the ODNR and the State and Private Forestry Division of the Forest Service to suppress insect populations to:</p> <ul style="list-style-type: none"> • Retard advance of the gypsy moth • Eradicate NNIS species that are present but not yet well established, such as the emerald ash borer. • Prevent the spread of non-native species currently lacking natural controls. • Protect populations of, or habitat for, endangered, threatened, or sensitive species. • Protect rare communities likely to be severely impacted by insect outbreak. • Prevent extensive tree mortality or defoliation in developed recreation areas and other areas where maintaining visual quality is a major objective. • Prevent spread onto land or into high value areas of the Forest (e.g., rare communities, developed recreation areas). • Prevent the introduction and spread of sudden oak death syndrome 	<p>Is the Forest responding appropriately to insect and disease outbreaks? (NEW)</p>	<p>How many NNIS sites were treated and how did the populations respond to treatment? How many acres of insect and disease were treated and how did the populations respond to treatment? (EDITED)</p>	<p>Biennially</p>	<p>Every 6 years</p>	<p>A</p>

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Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
	<p>7.1c Protect the Forest from wildfire by:</p> <ul style="list-style-type: none"> • Treating hazardous fuels that present a high risk of wild fire. • Treating hazardous fuels to move the forest closer to desired fire regime condition class and desired future condition. • Maintaining areas that are at the desired fire regime condition class 		<p>How many acres of hazardous fuels were treated? Has the fire regime been maintained in the desirable condition class? (EDITED)</p>	Every 4 years	Every 4 years	B
<p>7.2 – Manage NNIS populations using prevention, suppression, and restoration techniques to protect and restore natural communities. Emphasize prevention of spread and early detection of and rapid response to new infestations. Improve effectiveness of NNIS prevention practices through public and inter-agency NNIS awareness and education.</p>	<p>7.2a – Maintain and update an inventory of NNIS plant populations on NFS land. Include information on adjacent lands as gathered in cooperation with neighboring landowners. (ELIMINATE – do not mention in Monitoring Plan)</p>		<p>How many acres of the Forest are inventoried for NNIS plants and when were these inventoried? (ELIMINATE – inventorying is an important step in the management of NNIS, but the number of acres treated and degree of success are the key pieces to include in the Monitoring Report)</p>	Annually	Every 5 years	A
			<p>What is the effect of prescribed fire on NNIS? (ELIMINATE – This has not provided information meaningful in determining if forest management is progressing as intended)</p>	Annually	Every 5 years	B

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Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
	7.2b – Treat and reduce populations of non-native invasive plant species with high potential for spread. Implement control treatments of infestations that threaten priority resources. Prioritize treatment areas based on risk of spread, threat to resources, likelihood of successful control/containment, and partnerships.	Is the Forest successfully responding to NNIS plant populations? (NEW)	How many NNIS sites were treated and how did the NNIS populations respond to treatment? How many NNIS acres are treated annually and how did the NNIS populations respond to treatment? (EDITED)	Biennially	Every 4 years	A
7.3 – Manage NNIS populations using prevention, suppression, and restoration techniques to protect and restore natural communities in NFS waters. Emphasize prevention of spread and eradication of small populations/areas of infestation. Improve effectiveness of NNIS prevention practices through public and inter-agency NNIS awareness and education.			How many NNIS awareness and education events were given? (ELIMINATE –partners are providing this service)	Annually	Every 5 years	B

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<p>7.4 – Re-establish populations of native vegetation (e.g., American chestnut, American elm), as disease resistant varieties become available.</p>			<p>How many acres of native vegetation (eg American Chestnut, American Elm) as disease resistant varieties have been re-established? (ELIMINATE – researchers are still far off from having disease resistant varieties of trees to re-establish on the Forest. Our efforts so far have been to cooperate with researchers by providing sites for progeny tests.)</p>	<p>Annually</p>	<p>Every 5 years</p>	<p>B</p>

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Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
<p>8.1 – Safely implement the fire and fuels program of the Wayne National Forest. Promote State and Federal interagency cooperation in wildland fire and fuels management.</p>	<p>8.1b – Safely extinguish wildland fires using ground and/or air resources. (ELIMINATE – do not mention in the Monitoring Plan)</p>		<p>Number of wildfires suppressed with no reportable accidents/injuries or damage to private property. Number of acres of private property burned from fires with ignition on Forest Service land. (ELIMINATE – determined to not be necessary for the Monitoring Report. If accidents/injuries occurred they would be tracked in national required databases and investigations.)</p>	<p>Every Wildfire</p>	<p>Annually</p>	<p>B</p>
	<p>8.1c – Reduce hazardous fuels within communities at risk in cooperation with local, State, and Federal agencies.</p>	<p>Is the Forest reducing hazardous fuels within communities at risk? (NEW)</p>	<p>Number of acres in WUI treated for hazardous fuels reduction. Number of prescribed burns conducted in cooperation with local, state or other federal agencies. (EDITED)</p>	<p>Biennially</p>	<p>Biennially</p>	<p>B</p>
	<p>8.1e – Provide training to local volunteer fire departments in wildland fire suppression. (ELIMINATE – do not mention in the Monitoring Plan)</p>		<p>How many local volunteer fire departments were trained in wildland fire suppression? (ELIMINATE – determined to be not necessary for the Monitoring Report)</p>	<p>Annually</p>	<p>Annually</p>	<p>B</p>
	<p>10.1a – Coordinate with the Bureau of Land Management to offer leases of federally owned minerals. (ELIMINATE – do not mention in the Monitoring Plan)</p>	<p>Has the long-term health and biological diversity of ecosystems been protected when Federal and private minerals and energy resources are accessed? (NEW)</p>	<p>Are minerals standards, guidelines and stipulations providing environmentally sound exploration and development of Federal and private minerals and energy resources? Are site-specific mitigations providing environmentally sound exploration and development of Federal and private minerals and energy resources? (EDITED)</p>	<p>Annually monitor, report biennially</p>	<p>Every 4 Years</p>	<p>B</p>

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Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
10.1 – Provide a supply of mineral commodities for current and future generations, while protecting the long-term health and biological diversity of ecosystems. Facilitate the orderly exploration, development, and production of mineral and energy resources on land open to these activities.	10.1b – Process plans of operation/applications for permit to drill on Federal leases in a timely manner.	Is the Forest processing plans of operations/applications for permit to drill on Federal leases in a timely manner? (NEW)	How many plans of operation/applications for permit to drill on Federal leases were processed in a timely manner?	Biennially	Every 4 years	B
10.2 – While respecting privately held mineral rights, negotiate operating terms and conditions and mitigation measures to protect other Forest resources.	10.2a – Process plans of operation (and applications for major modifications) for privately owned minerals (reserved and outstanding rights) within 60 days.	Is the Forest processing plans of operation for privately owned minerals in 60 days? (NEW)	How many applications were processed within 60 days?	Biennially	Every 4 years	B
	10.2b – Restore lands disturbed by minerals exploration and production when the minerals activity is completed.	Are lands disturbed by minerals exploration and production being restored when the activity is completed? (NEW)	How many mineral activities were adequately restored upon completion?	Annually monitor, report biennially	Every 4 years	B
	10.2c – Plug wells when producing ceases.	Are wells being plugged when production ceases? (NEW)	How many wells were plugged according to state regulations when production ceases?	Annually monitor, report biennially	Every 4 years	B
		Is there a broad range of quality, outdoor recreation opportunities being provided and is the Forest responsive to visitor demands/needs?	What annual visitation estimates are reported (by type of visit - day use, developed, general forest area visits)? (NEW)			A

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<p>11.1 – Provide a broad range of developed and dispersed outdoor recreation opportunities and experiences within the ecosystem’s acceptable limits of change. Manage recreation facilities and opportunities to respond to public demands and promote local economic development. Emphasize recreation opportunities which can be better provided on the Forest than on private or other public land.</p>	<p>11.1a – By the end of this planning period, add at least one camping facility for ATV/OHM use and one for equestrian use. This could be accomplished by the Forest Service or concessionaire on NFS land or by the private sector on adjacent private property.</p>		<p>Why are people visiting the Forest and what are their demographics (demographics, visit descriptions, activities)? (NEW)</p>	<p>Monitoring every 5 years; reported out in the year following the NVUM report</p>	<p>Monitoring every 5 years; reported out in the year following the NVUM report</p>	
			<p>What level of spending is reported (spending, substitute behavior, etc.)? (NEW)</p>			
			<p>What level of visitor satisfaction is reported? (NEW)</p>			
<p>11.2 – Construct and maintain trails and associated facilities to provide a safe and quality experience within the capabilities of the land and</p>	<p>11.2b – By the end of this planning period, relocate/re-construct five miles of the North Country Trail where the trail is currently located on roads.</p>		<p>How many miles of NCT have been relocated/ reconstructed off existing roads?</p>	<p>Biennially</p>	<p>Every 4 years</p>	<p>B</p>

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appropriate to the management area.	11.2c – Maintain and administer the Forest’s motorized trail system to provide safe/enjoyable trail riding opportunities and reduce resource impacts.		How many miles of motorized trails have been maintained to standard (annual routine and deferred maintenance)?	Biennially	Every 4 years	B
	11.2d – Where maintenance methods prove ineffective and monitoring confirms unsafe conditions or unacceptable resource damage, close and rehabilitate and/or re-locate/reconstruct sections of ATV/OHM trails.		How many miles of motorized trails have been closed and rehabilitated and/or relocated/reconstructed due to unsafe conditions or unacceptable resource damage sections from ATV/OHM use?	Biennially	Every 4 years	B
	11.2e – Reduce and strive to eliminate illegal ATV/OHM use by: <ul style="list-style-type: none"> • Prohibiting cross-country travel or riding on undesignated user-created trails. • Prohibit riding on trails designated for other uses. • Riding on designated trails during closed seasons • Closing at least 20 miles illegal OHV trail within the next decade to: <ol style="list-style-type: none"> a) Protect federally listed species b) Protect Regional Forester’s sensitive species c) Improve watershed health 		Have sections of illegal trails on the Forest been closed and rehabilitated? If so, how many miles and where? Have sections of unauthorized routes on the Forest been closed and rehabilitated? What were those efforts and where did they take place? (EDITED)	Biennially	Every 4 years	B

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	11.2f – Maintain the Forest’s non-motorized trail system to provide safe/enjoyable trail hiking, horseback riding, and biking opportunities with minimal resource impacts.		How many miles of non-motorized trails have been maintained/reconstructed to standard?	Biennially	Every 4 years	B
	11.2g – Construct new trails during the next 10 to 15 years within the ranges and densities shown in Table 2 - 1.		How many miles of new motorized and non-motorized trails have been constructed?	Biennially	Every 4 years	B
12.1 - Maintain or enhance the quality of scenic resources to provide desired landscape character.		Is the Forest maintaining or enhancing the quality of scenic resources? (NEW)	Is the Forest being managed in accordance with the assigned SIOs and scenery guidelines found in the Forest Plan?	Biennially	Every 4 years	
13.1 – Provide current and future generations the opportunity to experience and appreciate the Forest’s diversity of human history and the relationship between people and the land.	13.1c – Reduce the backlog of heritage sites that require formal evaluation for eligibility to the National Register of Historic Places.	Is the Forest reducing the backlog of heritage sites needing evaluation for National Register eligibility? (NEW)	How many heritage sites have been evaluated for National Register eligibility?	Biennially	Every 4 years	B
	13.1d – Develop management plans for the long-term preservation of heritage resources that are either listed on or eligible for the National Register of Historic Places.	Is the Forest developing management plans for the long-term preservation of heritage resources that are either listed on or eligible for the National Register of Historic Places? (NEW)	How many management plans have been developed for heritage sites that are either eligible for or listed on the National Register of Historic Places?	Biennially	Every 4 years	B

Forest Plan: Chapter 4 Monitoring and Evaluation

Table 4 – 2: Monitoring Questions and Indicators

Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
14.1 – Adjust land ownership within the Forest proclamation boundary to enhance public benefits and improve management effectiveness.	14.1a – Purchase, exchange, accept donations, or convey lands and mineral rights on a willing seller, willing buyer basis. Give high priority to acquisition of land that will: <ul style="list-style-type: none"> • Consolidate National Forest ownership • Provide access to NFS lands and waters • Protect or enhance threatened and endangered species habitat, sensitive species, heritage resources, or other special areas • Permit development and management of wetlands, lakes and ponds, or recreational facilities • Eliminate or correct sources of water pollution • Consolidate surface and mineral estates • Enhance opportunities for community development. 	Does the Forest’s land-base progress toward consolidation that meets objectives by exchange, purchase or donation? (NEW)	Does the Forest’s land-base progress toward consolidation that meets objectives by exchange, purchase or donation? How many acres of land were acquired through exchange, purchase, or donation? (EDITED)	Biennially	Every 4 years	B
	14.1b – Acquire rights-of-way or property to improve access to NFS land.	Is the Forest improving access to NFS land? (NEW)	How many miles of right-of-way, or parcels of land, have been acquired to facilitate access to NF tracts?	Biennially	Every 4 years	A

Forest Plan: Chapter 4 Monitoring and Evaluation
Table 4 – 2: Monitoring Questions and Indicators

Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
	<p>14.1c— Foster good neighbor relations with local communities by:</p> <ul style="list-style-type: none"> • Not acquiring land that communities identify as having high potential for development or that is prime farmland • Considering land exchanges that provide opportunities for community development • Facilitating special use authorizations for utilities services to communities within and near NFS ownership • Co-locating Forest Service and community service communication facilities. (ELIMINATE – do not mention in the monitoring plan) 		<p>How many Special Use permits were authorized and re-authorized to allow local community developments on NFS lands? (ELIMINATE – It is not clear what a local community development is, and special use authorizations are captured in another question)</p>	Annually	Every 5 years	A
			<p>How many acres of prime farmland or acres of land with high potential for community development have been purchased? (ELIMINATE – This question has not been meaningful to answer, given the small amount of land the Forest acquires annually)</p>	Annually	Every 5 years	B
14.2 – Maintain boundary lines.	14.2a – Survey and post landlines not currently marked. Maintain lines previously marked on a 10-year cycle.	Is the Forest making progress towards the eventual marking and maintaining of the entire perimeter of NFS lands against private property?	<p>Is the Forest making progress towards the eventual marking and maintaining of the entire perimeter of NFS lands against private property? How many miles of NFS land boundary were marked to standard? (NEW)</p>	Biennially	Every 4 years	B
			<p>How many miles of NFS boundary were maintained to standard? (NEW)</p>	Biennially	Every 4 years	B

Forest Plan: Chapter 4 Monitoring and Evaluation
Table 4 – 2: Monitoring Questions and Indicators

Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
	14.2b – Resolve trespass/encroachment situations.	Is the Forest making progress toward resolving trespasses as they occur and are discovered?	Is the Forest making progress toward resolving trespasses as they occur and are discovered? How many trespasses were resolved? (NEW)	Biennially	Every 4 years	B
15.1 – Consider authorization for special uses that: <ul style="list-style-type: none"> • Serve the public • Promote public health and safety • Protect the environment • Cannot be reasonably accommodated on private land. 		Is the Forest considering and processing reasonable requests for uses on NFS lands?	Is the Forest considering and processing reasonable requests for Uses on NFS lands? How many special use permits were requested, how many of those met the criteria, and how many were issued? (NEW)	Biennially	Every 4 years	A

Forest Plan: Chapter 4 Monitoring and Evaluation

Table 4 – 2: Monitoring Questions and Indicators

Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
16 – Permit livestock grazing to: <ul style="list-style-type: none"> Facilitate land acquisition by permitting current use by livestock Contribute to wildlife habitat objectives Help control non-native species. 			How many parcels of land were acquired in the current year that were being grazed by livestock within approximately one (1) year prior to acquisition by the Forest Service? If there are any parcels, how many parcels? And are those parcels still being grazing, or being offered for grazing? (ELIMINATE - This question has not been meaningful to answer, given the small amount of land the Forest acquires annually)	Annually	Every 5 years	B
		Is grazing contributing to wildlife objectives or controlling NNIS? (NEW)	How many acres were grazed and contributed to wildlife habitat objectives; and how many acres were grazed to control non-native species?	Biennially	Every 4 years	B
17.1 – Provide safe, efficient facilities and related structures that meet the needs of Forest visitors.	17.1a – Conduct detailed inspections of facilities every five years, more often if needed.	Is the Forest providing safe and efficient facilities that meet visitors’ needs? (NEW)	How many administrative and recreation facilities meet current safety, mission, niche and use requirements?	Monitored on a rotation, report out on those monitored biennially	Every 6 years	B
	17.1b – Decommission facilities that are no longer needed.					
17.2 – Maintain dams as safe and effective water storage facilities.	17.2a – Maintain dams to standard.	Is the Forest maintaining safe and effective dams? (NEW)	How many Forest Dams meet current applicable regulations for dam safety?	Annually monitor for high hazard, report biennially	Annually monitor for high hazard, report biennially	B
	17.2b – Inspect high hazard dams annually.					
	17.2c – Decommissioned or appropriately dispose of dams no longer needed.					

Forest Plan: Chapter 4 Monitoring and Evaluation
Table 4 – 2: Monitoring Questions and Indicators

Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
<p>17.3 – In cooperation with local, State, and Federal government agencies, provide a safe, efficient transportation system for moving people, equipment, and forest products.</p>	<p>17.3a Reduce sedimentation and improve passage for aquatic and semi aquatic organisms at Forest development road and Forest Service recreation trail crossings. (ELIMINATE – do not mention in the Monitoring Plan)</p>		<p>How many stream crossing were inventoried and/or corrected for sedimentation production? (ELIMINATE – this question is a duplication)</p>	<p>Every 5 years</p>	<p>Every 10 years</p>	<p>A</p>
	<p>17.3b – Decommission temporary and system roads when they are no longer needed for administration of the Forest or its resources.</p>	<p>Is the Forest decommissioning system roads when they are no longer needed and rehabilitating unauthorized routes? (NEW)</p>	<p>How many miles or roads were evaluated to determine maintenance, storage, or decommission needs? How many miles of roads were decommissioned or rehabilitated? (EDITED)</p>	<p>When mgmt. activities are planned that may impact a road</p>	<p>Every 10 years</p>	<p>B</p>
	<p>17.4c – Maintain all roads in a condition that protects the government’s investment. If funds do not allow for regular preventive maintenance, close roads or restrict traffic to protect resources or investment.</p>	<p>Are Forest development roads maintained appropriately? (NEW)</p>	<p>How many miles of road are maintained to the level of service required, and how often is needed maintenance performed and are the roads environmentally stable?</p>	<p>An average of 20% of level 3-5 roads inspected annually</p>	<p>Every 10 years</p>	<p>A</p>
	<p>17.4d – Maintain at maintenance level 3, or higher, roads intended for passenger vehicles.</p>			<p>Visual review of 50% of Level 2 roads annually.</p>	<p>B</p>	
<p>17.4e – Maintain at maintenance level 2 roads intended for high clearance vehicles.</p>	<p>Level 1 roads every 10 years.</p>					
<p>17.4f – Maintain at Maintenance Level 1 roads that are closed to public travel.</p>						

Forest Plan: Chapter 4 Monitoring and Evaluation
Table 4 – 2: Monitoring Questions and Indicators

Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
	17.4g— Remove hazard trees along Forest development roads from Sept. 15 through April 15. (ELIMINATE – do not mention in the Monitoring Plan)		Are known hazard trees removed during the appropriate time of year? (ELIMINATE – this question was moved to the Indiana bat section)	Annually	Annually	A
18.1 Highly trained, equipped, and visible law enforcement officers and forest personnel contribute to safe and enjoyable experiences for visitors. Effective law enforcement protects public and employee safety, and public property.	18.1a— Prevent violations of law through: <ul style="list-style-type: none"> • Education • Information and regulatory signing • Improved facilities • Effective citing and prosecution of violations • Public notice of prosecutions and penalties • Presence of uniformed Forest Service personnel • Working with cooperating agency law enforcement officials at times and locations of heavy public use. (ELIMINATE – do not mention in the Monitoring Plan) 		How many prevention activities were performed? (ELIMINATE – This has not provided information meaningful in determining if forest management is progressing as intended)	Annually	Annually	B

Forest Plan: Chapter 4 Monitoring and Evaluation
Table 4 – 2: Monitoring Questions and Indicators

Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
	<p>18.1b – Focus law enforcement efforts on Forest priorities to reduce incidence of:</p> <ul style="list-style-type: none"> • Illegal OHV use • Arson Fires • Trespass and timber theft • Trash dumping (ELIMINATE – do not mention in the monitoring plan) 		<p>How many incidences of illegal OHV use, arson fires, trespass and timber theft, and trash dumping were reported? (ELIMINATE – This has not provided information meaningful in determining if forest management is progressing as intended)</p>	Annually	Annually	B
	<p>18.1c – Establish cooperative law enforcement agreements with State and Local agencies. Review and adjust cooperative law enforcement (CLE) agreements every five years. Annually review and adjust operating plans developed under these agreements. (ELIMINATE – do not mention in the monitoring plan)</p>		<p>How many agencies does the Forest have agreements with? (ELIMINATE – This has not provided information meaningful in determining if forest management is progressing as intended)</p>	Annually	Annually	B
	<p>18.1d – Report violations of laws and regulations. (ELIMINATE – do not mention in the monitoring plan)</p>		<p>How many violations were reported? (ELIMINATE – This has not provided information meaningful in determining if forest management is progressing as intended)</p>	Annually	Annually	B
<p>18.2 – Prevent contamination of National Forest soil, water, and air resources.</p>	<p>18.2a – Ensure that water supplies and wastewater facilities meet relevant state and federal laws. (ELIMINATE – do not mention in the Monitoring Plan)</p>		<p>Were the appropriate water quality tests performed? (ELIMINATE – all potable water sources available to the public at recreation and administrative facilities are supplied by municipalities, which conduct their own water tests.)</p>	Annually	Annually	A

Forest Plan: Chapter 4 Monitoring and Evaluation
Table 4 – 2: Monitoring Questions and Indicators

Goals	Objectives	Monitoring Questions	Monitoring Indicators Questions	Monitoring Frequency	Evaluation Frequency	Precision/Reliability
Standards and Guidelines Compliance (No specific enumerated Goal)		Did any project require guideline modification or a Forest Plan amendment to modify a standard?	Did any project require guideline modification or a Forest Plan amendment to modify a standard? How many modifications were required and to which standards and/or guidelines?	Biennially	Biennially	B
Climate Change		How are spring start date and growing season length changing across southeast Ohio? (NEW)	When did the growing season begin? (NEW)	Biennially	Every 10 years	A B
			When did the growing season end? (NEW)	Biennially	Every 10 years	A B