

Appalachian LCC DAY 1 – Portfolio priorities across disciplines

PLEASE USE THIS FORMAT IF YOU ARE ADDING NEW PROGRAMS OR NEEDS:

	Description:		
	Program Level: 8.10 ...		
ID- RecNo	Need Statement		
	[Need] ...		

PORTFOLIO PRIORITIES FROM DAY 1

	Thematic-Area (1) Pre-Existing Tools, Portals, Datasets, Resources (GIS / Information Management)		GOAL: Create, maintain, and grow a GIS/ IT architecture that facilitates the development of community networks, supports systems modeling, enables information creation, exchange and education in a consistent manner across administrative boundaries allowing users to easily discover, access and integrate data and tools to facilitate conservation across the landscape over time.	
	Description:			
	Program Level: 1.2 ...			
ID- RecNo	Need Statement			
	[Need] Capacity – GIS/IT Working group that: designs pilot study or use cases to guide the development of the architecture; identifies hardware, software, functionality and staffing needs; makes recommendations to steering committee for allocating resources for architecture needs; oversees the development of architecture; makes recommendations for governance, data access and security rules to steering committee; designs education and marketing approaches to engage stakeholder use; outlines methodology for assessment and monitoring of use.			
	[Need] Content management – Tools to gather and disseminate data. Backend infrastructure. Develop a geospatial web-based platform in collaboration with other LCCs, calendaring, web services, large files, projects and people database, group work flow, public commenting, hardware/software inventory, georeferencing, mobile applications, federated search.			

	[Need] Education - Learning management system (e.g., moodle) to include hardware/software demonstrations, field guides, training videos, podcasts, webinars, training material archives.	
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Thematic-Area (2) Aquatic	GOAL: Be able to quantitatively describe current and future hydrologic and structural habitat conditions and aquatic population trends, and set conservation goals for both, in order to maintain native habitats and endemic aquatic species in their current locations or support these as they migrate with land use and climate changes in the future.	
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	<p>Description: Develop and compile data to help partners and stakeholders better understand the types of aquatic habitats that occur within the LCC, the distribution and condition of those habitats, issues threatening the quality of those habitats, the relative importance of those habitats for species conservation within each of the states, and techniques that can be used to restore those habitats after they have been degraded.</p> <p>Program Level: 2.1. Habitat</p> <ul style="list-style-type: none"> • Connectivity • Water quality • Habitat quality <ul style="list-style-type: none"> ▪ Riparian habitat ▪ Instream, structural habitat • Habitat quantity • Hydrology <ul style="list-style-type: none"> ▪ Water quantity ▪ Timing ▪ Distribution 	
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ID-RecNo	Need Statement	
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	[Need] Relationships between contaminants and biological response	
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	<p>Description:</p> <p>Program Level: 2.6 Species-Habitat Relationships at Multiple Scales</p>	
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ID-RecNo	Need Statement	
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	[Need] To develop environmental flow requirements for species, populations, and communities for the region.	
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	[Need] To know the relationship between flow, habitat, and aquatic life (ecological flows) (this was listed in 2.1 Habitat program)	
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	Description: [Partial] Develop and compile climate change models for the LCC that can: help managers predict likely impacts to the region's water resources, aquatic species, and human systems that rely upon those resources; facilitate	
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	<p>the development of more robust regional mitigation and management plans; and help managers provide meaningful input to future revisions of state and Federal water regulations.</p> <p>Program Level: 2.7 Species/System Response to Alteration</p>	
ID-RecNo	Need Statement	
	<p>[Need] Effects of resource extraction – related to energy development and resource (energy) extraction; sitings; physical landscape; effects of fragmentation, sedimentation (Vulnerability of aquatic species and communities to Marcellus shale development in Appalachia – ID-RecNo 55).</p>	
	<p>[Need] Identify key limiting factors and stressors for priority aquatic taxa and communities across the LCC.</p>	
	<p>[Need] For the stressors that are currently politically impossible to correct (agriculture, forestry, urban growth, mining, etc), develop and communicate culturally viable solutions to address these stressors across the landscape.</p>	
	<p>[Need] Identify distribution of invasive species across watersheds and identify how and to what extent they threaten aquatic species. Complete a threats analysis of invasive species on aquatic species. Gather data on how states regulate exchange between states or intra-state movement of species in relation to non-indigenous species or move between watersheds.</p>	

<p>Thematic-Area (3) Terrestrial - Cave/Karst/Mines</p>	<p>GOAL: Develop and implement comprehensive regional strategies to conserve and manage cave/karst/mine (CKM) communities across jurisdictions by inventorying significant regional CKM communities and evaluating the condition, importance, and regional threats impacting these communities.</p>	
	<p>Description: (Foundational Resources) #s _0 - _3 Work with partners to identify existing foundational resources and develop a centralized repository recognizing the sensitivity and legal limitations of these data.</p> <p><u>Foundational Resources:</u> 3.0. Pre-Existing: Tools, Portals, Datasets, Data layers, Resources 3.1. Database / Information Management 3.2. Baseline Data / GIS Layers & Standardization of Data Collection</p>	
	<p>Needs Statement:</p>	
	<p>[Need] Map of springs throughout karst region—characterization and identification</p>	
	<p>[Need] Develop a classification system for karst systems in the Appalachian region (to help prioritize conservation strategies)</p>	

	Description:		
	Program Level: 3.3. GeoSpatial Status Assessment		
ID-RecNo	Need Statement		
	[Need] Inventory and mapping of CKM systems, understand species and community distributions, their habitat relationships, and linkages across systems		
	Description: Develop and compile data regarding the status and distribution of subterranean resources, threats impacting associated species, and work with partners to develop management strategies needed to address habitat threats and assist in the recovery of threatened and endangered species.		
	Program Level: 3.4. T&E Species - Recovery		
	Description: Develop and compile data regarding the status and distribution of subterranean resources, threats impacting priority cave species or other resources, and work with partners to develop management strategies needed to address those threats and assist in the recovery of those species.		
	Program Level: 3.5. Other Priority Cave Species		
	Description:		
	Program Level: 3.6. Management recommendations for sinkhole/cave/karst		
ID-RecNo	Need Statement		
	[Need] BMPs for cave/karst landscape, based on existing science.		
	[Need] Cave/karst training workshops for resource managers (e.g., provided by Karst Waters Institute)		

Thematic-Area (4) Terrestrial - Wetlands	GOAL: Work to inventory significant regional wetland habitats, evaluate the condition and importance of these habitats, and identify regional threats impacting those resources so that LCC partners and stakeholders can develop and implement cohesive regional management strategies to protect and manage wetlands across jurisdictions.		
	Description:		
	Program Level: 4.4. Wetland Community, hydrology (incl. contaminants)		
ID-RecNo	Need Statement		

	[Need] Identify and quantify the extent of naturally functioning floodplain habitat to priority habitat and species	
	[Need] Determine current extent of wetland connectivity to perennial streams compared to historical connectivity.	
	Description: Program Level: 4.5. Ecological Function	
ID-RecNo	Need Statement	
	[Need] Quantify ecosystem services of wetlands and their contribution to nutrient cycling to both aquatic and terrestrial systems.	

Thematic-Area (5) Terrestrial - Forests	GOAL: Develop and implement comprehensive regional strategies to conserve and manage forest communities across jurisdictions by inventorying significant regional forest communities, evaluating the condition, importance, and regional threats impacting these communities.	
	Description: (Foundational Resources) #s _0 - _3 Work with partners to identify existing foundational resources and develop a centralized repository to make those resources universally available to partners and stakeholders. <u>Foundational Resources:</u> 5.0. Pre-Existing: Tools, Portals, Datasets, Data layers, Resources 5.1. Database / Information Management 5.2. Baseline Data / GIS Layers & Standardization of Data Collection 5.3. GeoSpatial Status Assessment	
ID-RecNo	Need Statement	
	[Need] Spatial data framework; tools necessary for spatial data planning and future condition scenarios w/in the LCC (e.g. ecological land units, LandFire, LIDAR, Enhanced Conservation Action Planning)	
	Description: (Foundational Resources) #s _0 - _3 Work with partners to identify existing foundational resources and develop a centralized repository to make those resources universally available to partners and stakeholders. <u>Foundational Resources:</u> 5.3. GeoSpatial Status Assessment	
ID-RecNo	Need Statement	
	[Need] Assess status of Appalachian amphibians and determine impacts of emerging amphibian diseases	
	Description: Develop and compile data regarding the utility of silvicultural tools, invasive species management, and especially prescribed burning as restoration and management tools for a full complement of forest communities. Research	

	<p>how these practices might facilitate habitat conservation and coordination of forest conservation actions across regional boundaries under changing conditions.</p> <p>Program Level: 5.4. Sustaining Forests</p>	
	<p>Description: Develop and compile information about the LCC's rare species and communities (e.g. high elevation forests), work with partners to better estimate their current degree of imperilment, and coordinate the development of regional management strategies that will help conserve these species and communities in the face of changing conditions.</p> <p>Program Level: 5.6. Rare and Unique Species and Forest Communities (Terrestrial)</p>	
	<p>Description: Work with partners and stakeholders to develop and compile information about priority species and priority conservation areas within the LCC, their habitat requirements, and changes in the distribution of those species and habitats to facilitate the regional management of those resources.</p> <p>Program Level: 5.7. Landscape-level Species-Habitat (Modeling / Sp-Habitat Relationships / Assessment)</p>	
ID-RecNo	Need Statement	
	[Need] Understanding species distributions across the region, their habitat relationships, and migration corridors.	
	<p>Description: Work with partners and stakeholders to develop and compile information about how stressors individually and cumulatively impact forest sustainability and rare and unique species and communities.</p> <p>Program Level: 5.8. Species/System Response – Major Stressors</p>	
ID-RecNo	Need Statement	
	[Need] Effects of stressors (urbanization, energy development) on forest integrity/functionality and endemic species.	
	[Need] Assessing impacts of climate change on range-limited species (e.g. endemic salamanders).	
	<p>Description: Work with partners and stakeholders to develop scientifically based landscape-level planning, monitoring, and policy development tools that address the conservation needs of the LCC.</p> <p>Program Level: 5.9. Landscape-level (Integrated) Planning, Monitoring, and Policy Development Tools</p>	

ID-RecNo	Need Statement		
	[Need] Assessing priority species conservation areas (e.g. PARCAs) and vulnerability to stressors (e.g. climate change) in the Appalachians.		

Thematic-Area (6) Terrestrial - Open-land Natural Community (grasslands, meadows, balds, shale barrens)	GOAL: Develop and implement comprehensive regional strategies to conserve and manage natural and non-natural (e.g. restored minelands) grassland/open-land communities across jurisdictions by inventorying significant regional grassland/open-land communities and evaluating the condition, importance, and regional threats impacting these communities.		
	<p>Description: (Foundational Resources) #s _0 - _3 Work with partners to identify existing foundational resources and develop a centralized repository to make those resources universally available to partners and stakeholders.</p> <p><u>Foundational Resources:</u></p> <ul style="list-style-type: none"> 6.0. Pre-Existing: Tools, Portals, Datasets, Data layers, Resources 6.1. Database / Information Management 6.2. Baseline Data / GIS Layers & Standardization of Data Collection 6.3. GeoSpatial Status Assessment 		
	<p>Description: Develop and compile data to help partners and stakeholders better understand the types of open land habitats that occur within the LCC, the distribution and condition of those habitats, issues threatening the quality of those habitats, the relative importance of those habitats for species conservation within each of the states, and techniques that can be used to restore those habitats after they have been degraded.</p> <p>Program Level: 6.4. Faunal Habitats in Open Lands</p>		
ID-RecNo	Need Statement		
	[Need] Understanding historical vegetation distributions and disturbance regimes in the landscape and the extent to which they can be replicated given existing conditions.		
	[Need] Understanding species and community distributions across the region, their habitat relationships, and migration corridors.		
	<p>Description: Develop and compile information about the LCC's terrestrial endemic species, work with partners to better estimate their current degree of imperilment, and coordinate the development of regional management strategies that will help conserve these species in the face of changing land-use and climatic conditions.</p> <p>Program Level: 6.5. Terrestrial - Endemics / T&E Management, Recovery</p>		
	Description: Work with partners and stakeholders to develop and compile information about species within the LCC, their habitat requirements, and		

	changes in the distribution of those species and habitats to facilitate the regional management of those resources.	
	Program Level: 6.7. Landscape-level Species-Habitat (Modeling / Sp-Habitat Relationships / Assessment)	
	Description: Program Level: 6.8. Species/System Response - Major Drivers (CC, Energy/Development, Urban, etc.)	
ID-RecNo	Need Statement	
	[Need] Effects of stressors (urbanization, energy development, climate change) on open-lands integrity/functionality and associated species.	
	Description: Program Level: 6.9. Landscape-level (Integrated) Planning Tools (Recovery / T&E / SGCN)	
ID-RecNo	Need Statement	
	[Need] Develop BMPs for grassland/open-land community restoration and creation.	

Thematic-Area (7) Human Dominated / Economic Lands (Urban, Ag, Energy)	GOAL: To collaboratively meet economic development and conservation management goals through the understanding of potential land use changes, economic impacts and pressures on the resources of the App. LCC region to improve decision-making and management.	
	Description: Develop and compile information about new, traditional or expanding energy developments within the LCC and the opportunities and impacts these industries have on the character and distribution of fish and wildlife habitats so that partner agencies may be better able to develop collaborative opportunities and anticipate future land-use conflicts involving human energy needs, wildlife, and ecosystem service functions. Program Level: 7.5. Energy Development – New or Expanding Markets - Marcellus Shale, Wind, Biomass 7.6. Mineral/Energy Development – Traditional Market - Coal & AMLs	
ID-RecNo	Need Statement	
	[Need] Forecasting future spatial footprint of energy production in 20 years in light of changes to demand, technology, policy, and regulation, including econometric	

	models.	
	Description: Program Level: 7.7. Agland Management (sustainable ag and forest land management)	
ID-RecNo	Need Statement	
	[Need] Understand economics and ecological conditions of changing ownership patterns, including those of small landowners, to sustainably manage forested lands.	
	Description: Develop and compile information about the ongoing conversion of agricultural land to urban and suburban uses within the LCC and the impacts these changes are having on the character and distribution of human communities and fish and wildlife habitats so that partner agencies may be better able to understand system dynamics and recommend alternatives to minimize future land-use conflicts involving human communities, wildlife, and ecosystem service functions. Program Level: 7.4. Landscape-level Land Conversions – Urbanization and Ag-land Conversion (conversion of forested lands)	
ID-RecNo	Need Statement	
	[Need] Forecasting future spatial footprint of development in 20 years in light of changes to demand, technology, policy, and regulation, including econometric models.	

Thematic-Area (8) Human Dimensions - Environmental Benefits, Ecosystem Services, Social Expectations	GOAL: To meet public and local resident needs/preferences and conservation goals through better understanding, valuation and management of ecosystem services.	
	Description: Program Level: 8.4. Ecosystem Serv.	
ID-RecNo	Need Statement	
	[Need] Map, model and measure multiple ecosystem services at the same time at landscape scales, including: <ul style="list-style-type: none"> - Biophysical production functions/understanding of metrics - Mapping beneficiaries - Assessment of preferences - Priority of services 	

	- Cumulative impacts	
	<p>Description: Develop and compile natural and social science tools to describe the LCC's human population's participation in hunting and fishing, estimate trends in such participation, describe issues driving trends, and other information that will help partners develop new recruitment of hunters and/or develop new strategies to manage species if human harvest becomes insufficient to meet management goals.</p> <p>Program Level: 8.5. Envr/Social/Cultural Benefits - Recreation / Harvesting</p>	
ID-RecNo	Need Statement	
	[Need] To better understand the economic/cultural/social value of recreational activities such as hunting, fishing , birdwatching, wildlife viewing.	
	<p>Description:</p> <p>Program Level: 8.10 Communications/Outreach (stakeholder identification and engagement).</p>	
ID-RecNo	Need Statement	
	[Need] To understand how to better communicate complex technical issues to multiple stakeholders, decision-makers, and how science is used in decision-making.	

	<p>Thematic-Area (9) Climate Change - Impacts, Downscale/Coupled Modeling, Adaptation</p>	<p>GOAL: Work to apply the best available predictions of how the regional climate will change, estimate the impacts those changes will have on the region's natural and cultural resources, and work with partners and stakeholders to determine climate change adaptation and mitigation strategies that can be implemented and coordinated across multiple scales.</p>	
	<p>Description: Develop and compile scientific tools to project likely impacts climate change will have on the LCC, how those changes could affect the region's hydrologic resources including water quantity, quality, and timing, and work with partners to develop strategies to help human communities, industry, aquatic species managers and other conservation management interests, plan for, and adapt to those changes.</p> <p>Program Level: 9.4. CC - Impact - Hydrology</p>		
ID-RecNo	Need Statement		
64	[Need] Hydrologic regime change (related to climate change). Need to understand the impact of precipitation and temperature change on surface-water and groundwater hydrology in the context of regional characteristics such as land use,		

	water use. Recreation, industrial, municipal, aquatic biology, agriculture), geology, and changes in air pollution. [Incorporate Biological response]	
	<p>Description: Develop, compile and evaluate scientific tools for managers that assess the vulnerability of species, habitats, landscapes (includes aquatics) across multiple scales to changing climate conditions.</p> <p>Program Level: 9.5. CC - Vulnerability /Risk Assessment</p>	
ID-RecNo	Need Statement	
186	<p>[Nat'l LCC Network] Support a multi-scale vulnerability assessments (that incorporate species-specific physiological data) to identify habitats and species that would be most vulnerable to climate change in the LCC. (Coarse and fine scale). [notes: physiology includes Environmental physiology species specific data- what are the thermal tolerances, and seasonal cues for organisms, and when plugged into population models, the predicted impact on the population level processes.]</p>	
	<p>Description: Work with partners to develop regional climate adaptation strategies that will, to the extent possible, help ensure the persistence of healthy human and fish and wildlife communities through manager-scientist partnerships in the face of changing climatic conditions.</p> <p>Program Level: 9.6. CC - Adaptation (incl. Management Response)</p>	
ID-RecNo	Need Statement	
198	<p>[Nat'l LCC Network] Evaluate the interaction among land use, climate change, invasive species, and/or other environmental stressors to develop guidelines and principles for adaptation strategies. [Strategies: human interactions, biological augmentation, genetic banking, restoration efforts]</p>	

Thematic-Area (10) Social science research	GOAL: [Identify the social science research needed to achieve affective communications and stakeholder outreach and the specific audiences associated with that information need. Not outreach and communications activities but the science that supports those efforts.]	
	<p>Description:</p> <p>Program Level: 8.10 ...</p>	
ID-RecNo	Need Statement	
	[Need] ...	