

December 2013

**U.S. Fish and Wildlife Service Science Investment and Accountability Schedule (SIAS 2.0)
Commitment in Support of a National Landscape Conservation Cooperative Network
FY 2014**

Complex and persistent challenges have led the Fish and Wildlife Service (FWS) to re-assess how best to pursue the FWS mission. Our response has included the adoption of Strategic Habitat Conservation (SHC) as our conservation approach for sustaining populations of fish and wildlife, in the context of landscape and system sustainability, and the establishment of Landscape Conservation Cooperatives (LCCs) as public-private partnerships that can provide the expertise needed to support conservation planning, implementation, and evaluation at landscape scales. Taken together, and working within the larger conservation community, SHC and LCCs will focus on improved levels of collaboration that enable a region's private, state, federal, and tribal conservation infrastructure to operate as a networked, leveraged system. Specifically, within any given ecological region, entities comprising the private, state, federal, and tribal conservation infrastructure must interact as a system if they are to expect system-level impacts. Organizations and agencies recognize the need for functional connectivity and are developing ways to integrate their otherwise independent capacity for conservation planning and design, conservation delivery, as well as monitoring and evaluation. They acknowledge that the goals and objectives expressed at landscape scales exceed the grasp of any one organization. In recognition of the importance of these emerging themes in conservation, the FWS has committed to:

- Connecting strategic goals and explicit objectives to budgets by collaboratively developing conservation targets that link desired biological outcomes for fish, wildlife, and plants and other natural resources to landscape and habitat conditions necessary to sustain species at desired levels;
- Leveraging assets in ways that support robust networks of conservation partners and partnerships;
- Pursuing conservation at landscape scales as a science-based, collaborative endeavor that incorporates human dimensions considerations;
- Remaining transparent and accountable for our work by communicating outcomes and results of investments based on conservation goals and measurable objectives;
- Acknowledging, assessing, and addressing the uncertainties in alternative future landscape conditions by using an adaptive management framework where learning is an explicit objective of management; and
- Integrating our work with partners to effectively achieve conservation results expected by the public.

With the above interests in mind, the FWS Science Investment and Accountability Schedule (SIAS) will help guide our support for individual Landscape Conservation Cooperatives (LCCs) and the National Landscape Conservation Cooperative Network. In pursuit of our agency's mission and our vision for science, the following Activity Areas and associated Benchmarks will help specify our investment and participation in the LCC network to ensure effectiveness, efficiency, and support for the LCC Network vision and mission. This updated version of the SIAS (2.0) for FY2014 is built on the foundation of previous versions of the SIAS and has included elements of the SHC framework in a more structured manner.

LCC Network Vision: Landscapes capable of sustaining natural and cultural resources for current and future generations.

LCC Network Mission: A network of cooperatives depends on LCCs to:

- Develop and provide integrated science-based information about the implications of climate change and other stressors for the sustainability of natural and cultural resources;
- Develop shared, landscape-level, conservation goals, objectives, and strategies that are based on a shared scientific understanding about the landscape, including the implications of current and future environmental stressors;
- Facilitate the exchange of applied science in the implementation of conservation strategies and products developed by the LCCs or their partners;
- Monitor and evaluate the effectiveness of LCC conservation strategies in meeting shared objectives;
- Develop appropriate linkages that connect LCCs to ensure an effective network.

The SIAS is founded upon and maintains integral linkages to: “Strategic Habitat Conservation: Final report of the National Ecological Assessment Team” (2006); “Interior’s Plan for a Coordinated, Science-Based, Response to Climate Change Impacts on Our Land, Water, and Wildlife Resources” (DOI ca. 2009); “Addressing the Impacts of Climate Change on America’s Water, Land, and Other Natural and Cultural Resources (Secretarial Order No. 3289, amended 2010); “Landscape Conservation Cooperatives, Form and Function” (FWS ca. 2010); “Landscape Conservation Cooperatives and Climate Science Centers Implementation Guidance” (2011); “High Priority Performance Goals (OMB)”; the “Core Activities and Benchmarks” developed in 2011 and applied to FY12 LCC allocations; the “Vision, Mission, and Guiding Principles of the Landscape Conservation Cooperatives Network (2012); and, “Cooperative Landscape Conservation and Adaptive Science Funding Allocations for 2013” (FWS, Director’s Memo Dec., 2012).

SIAS 2.0 was developed by a team of Science Applications Assistant Regional Directors, LCC Coordinators and Science Coordinators, and OSA staff, and refined with input from each of the LCCs, to improve and expand upon the FY13 SIAS 1.0 conservation activity areas and benchmarks, thus reflecting the additional experience and perspectives of the evolving National LCC Network.

SIAS 2.0 is comprised of eight interrelated Conservation Activity Areas and associated benchmarks that are guided by the Strategic Habitat Conservation (SHC) framework. Implementation of SHC incorporates elements of the conservation enterprise in an iterative

process of adaptive management, including: biological planning, conservation design, delivery of conservation actions, decision-based monitoring, and assumption-driven research.

SIAS 2.0 (FY2014)

Conservation Activity Areas and Benchmarks	Metric
<p>1. Organizational Operations: Addresses fundamental organizational and administrative components necessary to establish and maintain an LCC as part of the National LCC Network. The LCC Partnership is composed of participating organizations (LCC Partners), is directed by the LCC Steering Committee (LCC SC), and is supported by the LCC Staff as well as science, technical and other work teams. The LCC Staff and LCC SC and their associated organizations actively engage other relevant individuals, organizations, and partnerships creating collaborative relationships with key decision makers who are able to influence current and future landscape conditions. The LCC Staff maintains strong professional contacts and connections, networking to keep LCC Partners abreast of current conservation issues, techniques, etc. The LCC Staff also identifies partner capabilities to address the LCC mission and works with partners to address capacity gaps by adding key positions, relying on partner capacities, utilizing contracts, or by training appropriate to the size and complexity of the LCC geographic region (LCC Geography). LCCs must work closely with other conservation science and delivery activities to ensure efforts are coordinated and integrated. The LCC participates in development of common national LCC network messages to relevant state, regional, and national entities. The LCC works to ensure its activities are coordinated and integrated with those of the Climate Science Centers, Cooperative Fish and Wildlife Research Units, Cooperative Ecosystem Studies Units, Forest Service Research Centers, Joint Ventures, Fish Habitat Partnerships, and similar key players.</p>	
<p>1.A - Engagement and Coordination - LCC Staff and Steering Committee are actively fostering strategic engagement, collaboration, and coordination with a diversity of entities that influence landscape conservation decisions, including: state and federal agencies, tribes, Universities, NGOs, regional partnerships (e.g., JVs, NFHPs, AFWA regions) and regional and local community planners.</p>	<p>No/Yes (0/1)</p>

<p>1.B - Leveraging Resources - LCC Partners contribute resources (e.g., staff, funding, infrastructure, tools, expertise, etc.) to fill administrative and technical capacity, and information gaps necessary to achieve the LCC mission.</p>	<p>0) 0% of total FWS annual investments* leveraged by partner contributions* (cash and/or in kind).</p> <p>1) 1% to 33% of total FWS annual investments leveraged by partner contributions (cash and/or in kind).</p> <p>2) 34% to 66% of total FWS annual investments leveraged by partner contributions (cash and/or in kind).</p> <p>3) 67% to 100% of total FWS annual investments leveraged by partner contributions (cash and/or in kind).</p> <p>4) >100% of total FWS annual investments leveraged by partner contributions (cash and/or in kind).</p>
<p>1.C - Evaluating Progress – The LCC Steering Committee has established metrics and processes for identifying, collaboratively pursuing, and evaluating actions in support of the LCC’s mission, goals, and objectives. The LCC develops a comprehensive strategic action plan, updated on a regular defined time period, that describes their science agenda, approach, monitoring, and communications strategy and progress in collaboratively achieving the LCC mission.</p>	<p>The LCC has developed a comprehensive strategic action plan. [Not Started (0); Started (1); Completed (2)]</p> <p>The LCC Steering Committee has developed and implements a process at regular intervals for evaluating progress towards established goals and updating the identification and prioritization of the most important science and capacity needs to support LCC goals. [Not Started (0); Started (1); At least one iteration of this process, resulting in an updated strategic action plan, has been completed (2)] [Note: Report (in narrative form) on the identified adaptive actions taken as a result of the process.]</p>

* All terms in red are defined in the attached Appendix A

1.D - Engaged Technical Community and Dedicated Technical Staff

- The LCC has organized the technical capacity, including dedicated partner staff, needed to address **priority conservation science needs**. Further, the LCC has established a working relationship with USGS regional Climate Science Center(s) and other entities to ensure that science and conservation activities involving the LCCs have access to the best regional technical information and that priorities are coordinated and integrated.

0) The LCC has not organized technical capacity nor established relationships with the **broader science community**.

1) The LCC has established science teams or technical committees to assess science and technical needs for the LCC.

2) The LCC's science teams or technical committees are addressing the LCC's priority conservation science needs.

2. Landscape Conservation Planning Foundation: Defines the foundation upon which an LCC builds an integrated landscape conservation planning, design, and delivery process that informs the identification of priorities relevant to achieving the mission of the LCC and the LCC Network. Establishes the conservation science foundation of LCCs based on transparent replicable processes and procedures to identify **priority resources** (biological, ecological, and cultural features and processes) including goals and **measurable objectives** and **conservation priorities** (knowledge, actions, or activities needed to address priority resources) for those resources. To be successful, landscape conservation planning and priority setting is a dynamic and iterative process that acknowledges and anticipates change, by incorporating the results and lessons learned from research, modeling and monitoring efforts. Further, assumptions are reviewed particularly for consideration of new threats and information - this review is to encourage the LCCs to regularly assess conservation priorities at various spatial and temporal scales.

2.A - Assess Existing Conservation Efforts - The LCC analyzes or assesses past and/or current large scale planning efforts' conservation priorities and associated goals and objectives (e.g., those identified by JV, NFHP, Marine National Monuments management plans, State Wildlife Action Plans, etc.) within the LCC geography to assist in the identification of priority resources. The LCC helps integrate conservation and design activity across partnerships to achieve LCC mission.

0) The LCC has not documented or evaluated large scale planning efforts across its geographic area.

1) The LCC has queried partners throughout the geographic area and documented large scale planning efforts.

2) The LCC has conducted, or evaluated the results of, formal assessments of large scale planning efforts and has documented convergence/overlap of priorities and objectives of all AND identified key information/monitoring needs identified by said planning efforts to enhance strategic conservation. [Report on methodology used for assessment (e.g. forums, workshops, literature review) and provide synthesis of findings.]

3) The LCC has incorporated priorities of ongoing planning efforts and/or identified opportunities to leverage planning efforts. [Report on how priorities and information needs have been considered and formally incorporated into LCC workplan and information acquisition/delivery strategy.]

4) The LCC has effectively leveraged, and provided key information needs to, large scale planning efforts across its geographic area. Partners in said efforts are integrated with LCC operations and actively exchange scientific information and provide updates regarding **conservation delivery**. [Report on number of planning efforts successfully integrated, type and extent of information exchanged and extent of conservation delivery undertaken for common resource priorities.]

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2.B - Identify Priority Resources -The LCC uses the compilation developed in 2.A to help conduct systematic and transparent processes resulting in the identification and establishment of priority resources (biological, ecological, and cultural features and processes) and conservation priorities for those resources.

0) The LCC has not started this process.

1) The LCC has initiated the process to identify priority resources.

2) The LCC has identified and formally established priority resources.

<p><u>2.C - Collate and Establish Conservation Goals and Measurable Objectives</u> - The LCC is using existing partner conservation goals and measurable objectives, as appropriate, or refines them in establishing new conservation goals and measurable objectives as needed for the identified priority resources. Goals and objectives are linked to the ability of current and future landscapes to support desired resource levels at appropriate spatial scales across an LCC's geography.</p>	<p>0) The LCC has not started the process to identify measureable objectives.</p> <p>1) The LCC has initiated the process to identify measurable objectives.</p> <p>2) The LCC has completed identification of measureable objectives for at least 25% of the identified priority resources.</p> <p>3) The LCC has completed identification of measureable objectives for at least 50% of the identified priority resources.</p> <p>4) The LCC has completed identification of measureable objectives for 100% of the identified priority resources.</p>
<p><u>2.D -Refining Landscape Conservation Planning Foundation</u> - The LCC partnership has developed a mechanism and timeline for updating conservation priorities and associated objectives, including revisiting conservation design and assessment of assumptions under which it bases its designation of priority resources (See 2.B) and decisions relative to achieving the LCC's mission as part of an adaptive management framework.</p>	<p>The LCC has developed a process and timeline to reassess priority resources and measurable objectives at regular intervals. (No/Yes - 0/1)</p> <p>The LCC has used the results and products of research, monitoring, and modeling activities within an adaptive management framework to improve and revise conservation plans, conservation design tools, monitoring protocols, and research priorities for the LCC's priority resources. (No/ Yes – 0/1)</p> <p>The LCC has implemented a process to assess assumptions under which it bases its designation of priority resources and its establishment of conservation priorities (No/Yes -0/1)</p> <p>Summary Score (0 to 3): [Provide narrative report to support all "YES" responses to the above.]</p>

3. Landscape Conservation Design: Interprets the biological, ecological, and **cultural goals** and objectives for priority resources defined by the LCC in support of the mission of the LCC and the LCC network. LCC members develop or assemble climate, land-cover, land-use, hydrological and other relevant data in spatially explicit contexts to define and predict landscape patterns that support biological, ecological, and cultural resource goals and objectives defined in Conservation Activity Area #2 (Landscape Conservation Planning Foundation). Results of conservation planning and integrated landscape design are used to establish **conservation and adaptation strategies** to help target **conservation delivery**.

3.A - Vulnerability and Landscape Assessments - LCC staff and partners are coordinating, supporting or conducting **vulnerability assessments** specific to the LCC's priority resources and agreed upon conservation goals and objectives. The LCC also coordinates, conducts, and supports the development of **landscape assessments** that consider current and expected future conditions of landscapes and uses these two sets of analyses to evaluate the capability of the LCC's geography to support its **objectives and targets** for the LCC's **priority resources**.

- 0) The LCC has not conducted vulnerability or landscape assessments.
- 1) The LCC or partners are developing or assembling information necessary to drive vulnerability and landscape assessment efforts for the LCC's priority resources.
- 2) The LCC or partners have completed or adopted vulnerability or landscape assessments for at least 33% of the geography or 33% of the LCC's priority resources.
- 3) The LCC or partners have completed or adopted vulnerability or landscape assessments for at least 66% of the geography or 66% of the LCC's priority resources.
- 4) The LCC or partners have completed or adopted vulnerability or landscape assessments for its entire geography for all priority resources.

3.B -Adaptation Strategies- Informed by vulnerability and landscape assessments for the LCC's priority resources, the LCC develops and integrates practical tools and information resulting in adaptation strategies that identify alternative management approaches for specific conservation priorities. For example, an adaptation strategy may consider the effects of climate change, land-use change, and ecosystem services in the development of management actions and landscape designs for the LCC's priority resources.

- 0) The LCC is not developing climate change adaptation strategies.
- 1) The LCC is developing or compiling assessments of threats, exposure, and resilience (vulnerability) to inform climate change adaptation strategies.
- 2) The LCC or partners have developed or adopted adaptation strategies for at least one of the LCC's priority resources.
- 3) The LCC or partners have developed or adopted adaptation strategies for more than 25% of the LCC's priority resources.
- 4) The LCC or partners have developed or adopted adaptation strategies for more than 50% of the LCC's priority resources.

3.C - Integration of Multiple Priority Resources and Associated Measurable Objectives into Landscape Conservation Designs -

The LCC is developing **spatially-explicit conservation designs and products** that reflect landscape conditions and the ability of current and future landscapes to support the LCC's priority resources.

- 0) The LCC Steering Committee hasn't committed to this process.
- 1) The LCC Steering Committee has committed to adopting or developing shared conservation designs for the LCC's priority resources.
- 2) The LCC has completed shared conservation designs for up to 50% of the LCC's geography or for up to 50% of identified **focal areas**.
- 3) The LCC has completed shared conservation designs for more than 50% of the LCC's geography or for more than 50% of identified focal areas.
- 4) The LCC has completed shared conservation designs for 100% of the LCC's geography.

4. Informing Conservation Delivery: Ensuring that scientific information and technology are useful and readily available to decision makers that can influence current and future landscape conditions. Many organizations participating as members of LCCs have extensive conservation delivery or related programs and efforts. LCCs develop tools and information to inform **conservation delivery decisions** now and in the future and ensure tools are relevant to individual organization mission pursuits. These products are built in consultation with end users, transferred and accessed with minimal impediment, and applied in a manner that improves efforts that address common and shared conservation priorities. LCCs must work closely with other conservation science and delivery partners to ensure efforts are coordinated and integrated.

<p>4.A - Provide Decision Support - The LCC develops landscape conservation decision support information and tools to inform partners' conservation strategies relative to meeting LCC objectives for priority resources.</p>	<p>0) The LCC has not produced decision support information or tools.</p> <p>1) The LCC is investing in the development of decision support information or tools.</p> <p>2) The LCC's conservation partners are using the decision support information or tools developed by the LCC to address at least one of the LCC's identified priority resources.</p> <p>3) The LCC's conservation partners are using the decision support information or tools developed by the LCC to address at least 50% of the LCC's identified priority resources.</p> <p>4) The LCC is refining/improving the decision support tools and information it has developed to better meet the needs of conservation partners relative to the LCC's identified priority resources.</p>
<p>4.B - Information Delivery - The LCC develops delivery techniques to ensure that the LCC's products and tools are available for various decision makers that influence landscape conditions relevant to resource priorities and conservation objectives of the LCC and the LCC partners.</p>	<p>Indicate the extent to which the LCC has addressed the benchmark:</p> <p>0) Not at all; none;</p> <p>1) Minimally; barely; to a small degree;</p> <p>2) Medium; moderately;</p> <p>3) Mostly; largely; to a large degree;</p> <p>4) Fully; completely; significantly.</p> <p>[Note: Include description of the information delivery capacity (techniques being used for resource priorities include: Access to data, visualization of data, integration of information, workshops/conferences, etc.)]</p>

4.C - Assessment of Information Delivery – The LCC has a transparent system to track and assesses use of products it has invested in and makes adjustments to the products or the delivery techniques, as needed.

- 0) The LCC has no tracking system in place.
- 1) The LCC has an information delivery tracking system in place.
- 2) The LCC is receiving and analyzing feedback on its approach to information delivery.
- 3) The LCC is actively modifying its information delivery techniques to meet the needs of its management partners and the LCC demonstrates an overall increase in the use of its products and tools over time.

4.D - Collaborative conservation delivery to realize resource objectives - The LCC has been effective in informing resource managers and wildlife managers about the LCC’s collectively identified conservation priorities (and related information and planning tools) for the landscape. Where appropriate, partners integrate shared LCC conservation priorities into respective planning activities and align their conservation delivery to support achievement of objectives for the LCC’s priority resources while also meeting their missions, mandates, and authorities. Optimally, these actions can be tied directly to the desired measurable responses of fish and wildlife populations, as well as other natural and cultural resources valued by the partnership.

- 0) LCC partners have not integrated LCC conservation priorities with management plans nor delivered conservation actions consistent with objectives for the LCC’s priority resources.
- 1) The LCC partners have incorporated the conservation priorities for up to 50% of the LCC’s priority resources into conservation planning or **decision-making processes.**
- 2) The LCC partners have incorporated the conservation priorities for greater than 50% of the LCC’s priority resources into conservation planning or decision-making processes.
- 3) The LCC partners are implementing conservation delivery actions (Partners applying their respective authorities, abilities and funding where appropriate) to achieve measurable objectives for up to 50% of the LCC’s priority resources.
- 4) The LCC partners are implementing conservation delivery actions (Partners applying their respective authorities, abilities and funding where appropriate) to achieve measurable objectives for greater than 50% of the LCC’s priority resources.

4.E - Tracking Delivery on the Landscape. The LCC has developed or has access to the capacity to track, catalog and report on conservation delivery actions undertaken and implemented by management partners, as well as to evaluate the utility of LCC products to improve delivery. The LCC has implemented a methodology (voluntary updates from partners, surveys conducted by LCC staff, etc.) to populate and update the tool or process. This tool/process allows the LCC to catalog modifications to operational plans and subsequent conservation delivery actions that help to achieve measurable objectives for the LCC's priority resources and to assess effectiveness of LCC conservation design products. The tool/process is used to promote situational awareness of ongoing conservation operations among the LCC's partners, to facilitate evaluation of attainment of collectively recognized conservation priorities (provides target rich environment for 5B), and to adaptively improve LCC products.

0) The LCC does not track partners' use of LCC products nor evaluate attainment of conservation priorities or objectives for the LCC's priority resources.

1) The LCC has developed a tracking tool or process that examines the utility of LCC products for improving partners' conservation delivery and that can be used to evaluate attainment of measurable objectives for the LCC's priority resources.

2) The LCC is measuring attainment of measurable objectives for up to 25% of the LCC's priority resources. Attainment of objectives includes on-the-ground delivery of conservation mechanisms as a result of LCC products.

3) The LCC is measuring attainment of measurable objectives for 25% to 75% of the LCC's priority resources. Attainment of objectives includes on-the-ground delivery of conservation mechanisms as a result of LCC products.

4) The LCC is measuring attainment of measurable objectives for greater than 75% of the LCC's priority resources. Attainment of objectives includes on-the-ground delivery of conservation mechanisms as a result of LCC products.

5. Decision-based Monitoring: Entails promoting and supporting a collaborative monitoring approach to track and evaluate landscape change overtime relative to conservation objectives for the LCC's conservation and resource priorities. Where adequate, LCCs use **existing monitoring infrastructure** to develop **collaborative monitoring networks** among partners that efficiently track and evaluate status and trajectory of resource priorities and landscape condition change overtime. The results of these efforts are shared broadly and result in refined approaches to conservation and adaptation actions.

<p>5.A - Collaborative Monitoring - The LCC helps coordinate sharing of protocols, data management and analysis tools, etc. among the collaborative monitoring network partners including the Service's Inventory and Monitoring capacity (i.e., Refuges I&M) and other LCC member organizations.</p>	<p>Indicate the extent to which the LCC has addressed the benchmark:</p> <p>0) Not at all; none.</p> <p>1) Minimally; barely; to a small degree (The need has been clearly identified and a committee structure adopted to support the goal).</p> <p>2) Medium; moderately (Committee established that represents the diversity of organizations needed to monitor the LCC's established conservation priorities and associated objectives).</p> <p>3) Mostly; largely; to a large degree (Monitoring objectives are set and protocols established).</p> <p>4) Fully; completely; significantly (Necessary investments are available to initiate monitoring).</p>
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5.B - Monitoring Change of the Landscape and Priority Resources

- The LCC facilitates evaluation of and sharing and synthesis of information on landscape change over time and projected changes in status of priority resources. The LCC tracks change in status of priority resources relative to established conservation objectives at time-relevant intervals. Results are being used by decision makers to refine conservation and adaptation actions.

0) Not at all; none.

1) LCC partners are monitoring status and change of conservation priorities and associated objectives within at least one landscape previously identified as an LCC focal area or within at least 25% of the LCC's geography.

2) LCC partners are monitoring status and change of conservation priorities and associated objectives within at least one focal area or within at least 25% of the LCC's geography and results have been integrated and shared, resulting in refinement of priorities, objectives and designs for conservation or adaptation actions.

3) LCC partners are monitoring status and change of conservation priorities and associated objectives within multiple LCC subunits (focal areas) or within at least 50% of the LCC's geography and results have been integrated and shared, resulting in refinement of natural resource priorities, objectives and designs for conservation and adaptation actions.

4) LCC partners are monitoring status and change of conservation priorities and associated objectives across entire LCC geography. The results have been integrated and shared, resulting in refinement of priorities, objectives and designs for conservation and adaptation actions.

6. Research to Support Adaptive Management: Conservation planning, conservation design, conservation delivery, and monitoring are placed in the adaptive management framework envisioned by SHC. Research is focused on identified uncertainties and assumptions associated with each of the previous five activity areas such that conservation priorities and the actions taken to address them are being regularly re-evaluated by the LCC. The LCC has identified, prioritized, and targeted research that addresses key uncertainties, assumptions and significant gaps in knowledge for the LCC as it organized its efforts to identify and address priority resources. The LCC coordinates, supports, or conducts identification of sources of key uncertainties with respect to their influence on planning, conservation design, monitoring, and information delivery and uses those results to guide future science activities (e.g. data collection, research, model refinement) as part of the adaptive management framework.

6.A - Testing Underlying Assumptions - The LCC has identified, prioritized and targeted research that addresses **key uncertainties** related to LCC priority resources. The LCC coordinates, supports, or conducts identification of key uncertainties with respect to their influence on planning, conservation design, monitoring, and information delivery and uses those results to guide future science activities (e.g. data collection, research, model refinement) as part of the adaptive management framework.

0) The LCC has no process in place for evaluating its ability to address key uncertainties related to priority resources.

1) The LCC has identified, prioritized, and targeted research that addresses key uncertainties for one of the LCC's priority resources.

2) The LCC has identified, prioritized, and targeted research that addresses key uncertainties for up to 33% of the LCC's priority resources and has used the results of this research to guide its science activities.

(3) The LCC has identified, prioritized, and targeted research that addresses key uncertainties for between 33% and 66% of the LCC's priority resources and has used the results of this research to guide its science activities.

4) The LCC has identified, prioritized, and targeted research that addresses key uncertainties for more than 66% of the LCC's priority resources and has used the results of this research to guide its science activities.

7. Data Management and Integration: Facilitates formal mechanisms for information discovery, sharing, and collaboration. Guidance documents from the LCC Network Data Management Working Group call for individual LCCs to coordinate information management and delivery both internally (intra-LCC), and externally (inter-LCC) as many resource issues will cross existing LCC geographies. This Conservation Activity Area addresses whether the LCCs are coordinating across partners and linking activities to standards developed to function as a national network.

7.A - Data Management and Integration - The LCC has developed or adopted a **data and information management plan** that identifies how information management will occur among LCC Partners and the LCC Network. **The LCC's lead data management capacity** implements the data management plan and uses a **shared data and information platform** to accumulate and deliver foundational data, conduct data gap assessments, provide a repository and tracking mechanisms for modeling, research, or other science products.

- 0) The LCC has no data management plan in place.
- 1) The LCC has a data management plan in place.
- 2) A functional data management platform has been implemented, consistent with the plan, and funded science projects are adhering to the management plan (delivery of data and metadata).
- 3) The LCC has capacity for management and stewardship of the platform, including ability to interrogate, utilize, and manipulate datasets to provide interpretive products and new or improved decision support tools and opportunities for the LCC.
- 4) All LCC partner organizations that have data relevant to the LCC's priority resources or to LCC science planning needs are contributing or exposing (with appropriate controls and security) those data.

8. LCC Network Function: The LCC enterprise was designed to be an integrated network of self-directed partnerships to address broad resource management challenges. To secure the conservation landscape of the future, the 22 unit LCC Network should function seamlessly by addressing conservation issues at appropriate scales via shared priorities and targets. Although each LCC has unique characteristics and challenges specific to its geography, an important measure of an LCC's success is how well it integrates and shares with neighboring LCCs, other partnerships and the network as a whole.

8.A – Participation in the LCC Network Enterprise - LCC staff participates in formal LCC Network activities, including participation on national working groups, coordinator calls, and national meetings. Further, LCC staff and Steering Committee members engage in informal network activities to exchange ideas, conservation tool development (data management, decision support tools, etc.) and problem solving techniques. The overall goal is to ensure efficiency and collaborative learning across the broader landscapes in addressing science and management issues and needs.

0) LCC staff does not actively and regularly participate in formal LCC Network activities, including national working groups, coordinator calls, and national meetings.

1) The LCC has formally shared its priorities and/or conservation objectives with neighboring LCCs and looks for opportunities to coordinate planning and conservation design to determine if its conservation products and activities can inform the conservation objectives of those other LCCs at broader scales.

2) The LCC is routinely coordinating and collaborating with neighboring LCCs on business approaches (e.g., RFPs, communication strategies, business models, etc.).

3) The LCC is collaborating with at least one other LCC on a multi-LCC science project that fills a shared data gap, produces a shared decision support tool, and/or addresses a shared management concern/question of multi-LCC partners.

4) Landscape-level conservation delivery has occurred as a direct result of fulfilling metrics 1, 2, and 3 above.

8.B - Function as Part of Integrated Network of LCC Partnerships

– LCC identifies shared priorities with other LCC(s) and coordinates planning and conservation design, as appropriate. LCC actively ensures that LCC supported science, planning, data, tools, priorities, etc., are compatible and interoperable with other LCCs so that LCC products and activities can link to conservation objectives and at broader scales (e.g., regional, continental, and oceanic).

Indicate the extent to which the LCC has addressed the benchmark:

- 0) No, not at all;
- 1) Minimally; barely; to a small degree;
- 2) Medium; moderately;
- 3) Mostly; largely; to a large degree;
- 4) Fully; completely; significantly.

Appendix A

SIAS 2.0 Glossary of Terminology

(Terms defined are shown in red font in the SIAS 2.0 Table. The associated Activity Area, Benchmark, or Metric is shown in parentheses.)

broader science community (1.D)

Any science provider and user that is not a direct partner in the LCC yet that contributes science, information, tools, etc., in furtherance of mission and goals of the LCC.

collaborative monitoring networks (5)

The group of partners participating in monitoring of the status of conservation objectives established by the LCC.

conservation and adaptation strategies (3)

A method or plan to achieve a desired outcome that addresses conservation or environmental adaptation challenges.

conservation delivery (2.A; 3)

Actions, decisions, and on-the-ground activities undertaken for natural resource management. This can include such actions as legal protection or regulations on use, manipulation, enhancement, and other activities.

conservation delivery decisions (4)

Those discretionary decisions made by management entities who have partnered with the LCC to most effectively allocate operational effort, financial resources, and/or permit issuance so as to achieve their respective missions, goals, and objectives.

conservation priorities (2)

Conservation Priorities are the critical knowledge, science, actions, or activities that are needed in order to achieve the LCC’s goals for the LCC’s priority resources.

cultural goals (3)

A description of the status of the landscape, including plants, animals, geographic setting (landforms) that is desired to be attained or protected that reflects the customary beliefs, social forms, and material traits of a racial, religious, or social group that is of interest.

data and information management plan (7.A)

A plan for how the LCC will manage and deliver data; at a minimum the plan must incorporate the Data Management Best Practices for Landscape Conservation Cooperative (and subsequent revisions and addendums) that was developed by the LCC Network Data Management Working Group.

data management system (2.D)

Processes that enable the storage, modification, and extraction of information.

decision-making processes (4.D)

LCC partners may use a variety of processes to make decisions about how to implement their missions, authorities, and resources. Examples include decisions about how to apply a policy that may support an LCC priority or objective; funding programs for implementing conservation actions such as land conservation may incorporate LCC priorities or objectives as one factor in a decision.

delivery techniques (4.B)

Those practices and actions (facilitating access to data, visualization of data, integration of information, workshops/conferences, etc.) that effectively provide information, data, and decision tools to resource managers across the geographic area.

existing monitoring infrastructure (5)

Monitoring programs or efforts that currently exist among LCC partners.

focal areas (3.C; 5.B)

Focal Areas are geographic area(s) that have been collaboratively identified and prioritized by the LCC Steering Committee for conservation emphasis due to ecological or management significance. In the context of 3.C, this is measured as the percent of all focal areas addressed by conservation designs or strategies for the LCC's priority resources.

FWS annual investments (1.B)

The sum of annual investments for both capacity (Cooperative Landscape Conservation; 1410) and science acquisition (Adaptive Science; 1420) allocated to the FWS region for the operation of that specific LCC.

high priority resource needs (2.D)

The priority resources that have been determined to be insufficient in quantity, quality or location in order to attain a conservation goal. In essence, this is the gap between existing resources and those identified as optimal for attainment of goals. In the context of 2.D this is an information system that tracks current status, goals and needs.

key uncertainties (6.A)

Data and/or information needs that are limiting a managing entity's ability to decide upon future management actions (i.e., the "where, when, how, what, who, why" questions for conservation delivery, monitoring, planning, and design).

landscape assessments (3.A)

A compilation and characterization and evaluation of the geology, hydrology, soils, ecology, settlement patterns, cultural history, scenic characteristics, land use, etc., in the context of a planning process that relates the current state to some future desired state.

landscape conservation decision support information and tools (4.A)

Maps, data bases, decision trees, and other tools built from geospatial data, biological information, and the results of ecological models that help LCC partners decide which conservation actions to apply to a given landscape.

LCC partners (1.B) Organizations and entities that actively participate in the LCC.

LCC products (2.D)

Research, monitoring, modeling, analysis, reports, decision support tools, mapping or any tool developed either through or in partnership with an LCC.

measurable objectives (2)

Measurable objectives are the spatially and temporally specific quantitative attributes that characterize the desired state of the LCC's priority resources.

objectives and targets for conservation priorities (3.A)

Conservation priorities are defined for activity area 2 (above), *measurable objectives* are defined for activity area 2 (above), *targets* are measurable expressions of desired resource conditions that are established by the LCC partnership.

partner contributions (1.B)

The sum of annual expenditures by LCC partners to support work in any of the LCC Conservation Activity areas.

priority conservation science needs (1.D)

Science needed to make the decisions for protection, preservation, manipulation or restoration of LCC identified priority resources.

priority resources (2)

The set of biological, ecological, and cultural features and ecological processes that have been collaboratively identified by LCC Steering Committees and that are the focus of the LCC's planning, science, and measurable objectives.

shared data and information platform (7.A)

A web-based system that allows for the accumulation and delivery of extant and novel data, allowing for the interrogation, utilization, and manipulation of said data sets to provide interpretive products and new or improved decision support tools.

spatially-explicit conservation designs and products (3.B)

Conservation design brings together results from “Landscape Conservation Planning Foundation” into spatially explicit depictions of desired future conditions that are accessible to diverse stakeholders. Common products are maps and/or decision trees which provide the strategies for achieving the LCC’s conservation objectives.

The LCC’s lead data management capacity (7.A)

Capacity the LCC uses to adhere to, implement and maintain their Data and Information Management Plan. This capacity can take the form of LCC staff, partner staff, contract staff, etc.

vulnerability assessments (3.A)

The process of identifying, quantifying, and prioritizing (or ranking) the vulnerabilities in a system; a vulnerability refers to the inability to withstand the effects of a hostile environment.