

Appendix 1: Crosswalk of Eastern Threat Center projects to problem areas and partners that highlights strategic implementation efforts

The Eastern Threat Center’s research work unit description provides a coarse overview of Center expertise, research objectives, and problem areas the Center addresses. These problem areas can be strategically addressed through a wide range of opportunities, and the Center is engaged in numerous, targeted research projects, partnerships, and initiatives.

The Center’s projects span multiple problem areas. Some projects focus more on monitoring (Problem Area 1) while others consume existing datasets for integrated assessment purposes or prediction (Problem Area 2). All primary projects include a substantial emphasis on exchange with end users (Problem Area 3), which helps to ensure that varied aspects of the Center’s applied science work are more clearly articulated and addressed. Interrelationships between the three problem areas and critical partnerships are outlined in Figure 1.

In Table 1, the Center’s primary projects are summarized according to critical partnerships and the nature of their work across the three Problem Areas. Center scientists are also involved with other projects that are related to these or in addition to these core efforts.

The Center’s communication and outreach efforts engage multiple audiences to achieve broad-based awareness of its research activities. Scientists and support staff regularly interact and partner with multiple Federal and state agencies, non-governmental organizations, universities, private organizations, Tribes, and other multicultural groups. These connections help expand and enhance understanding of the Center’s products and tools and also provide opportunities to engage with traditional and non-traditional customers and stakeholders.

Figure 1. *Interrelationships among the Center’s three problem areas.*

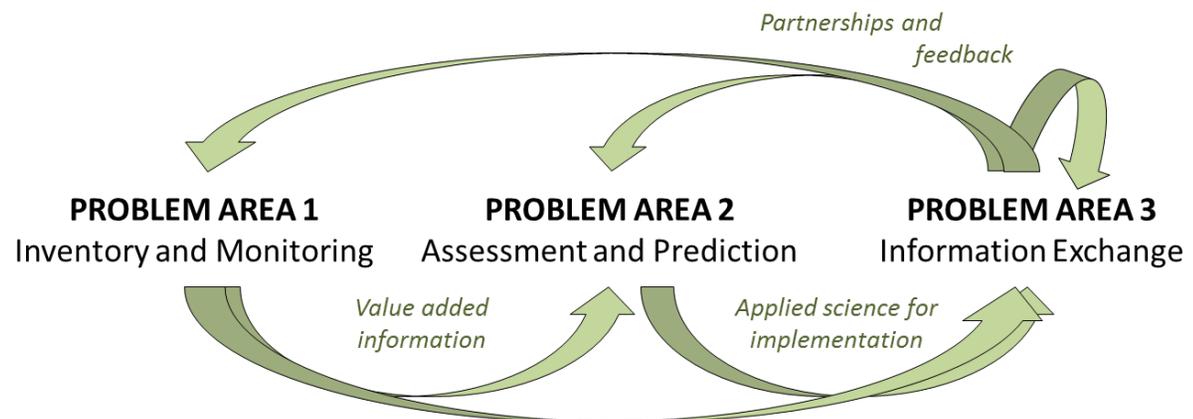


Table 1. Crosswalk of primary Center projects, key partners, and research work unit description problem areas.

Selected Eastern Threat Center Projects	Key Partners	Problem Area 1: Inventory and Monitoring	Problem Area 2: Applied Assessment and Prediction	Problem Area 3: Active Information Exchange
Climate change effects on water (WASSI; http://www.forestthreats.org/research/tools/WaSSI)	Forest Service International Programs, USDA Regional Climate Hubs, universities, international partners	Create value-added monitoring products from existing climate and water datasets	Improve models for assessments of climate change impacts to water quality and quantity and how that relates to carbon sequestration	Engage water supply planners to identify where stress is likely to create conflicts in the future and how that may be mediated
Comparative risk assessment for planning and management (CRAFT; http://craft.forestthreats.org)	University partners (UNCA-NEMAC), National Wildland Fire Cohesive Strategy Group	Derive value-added measures from existing datasets that can be used for risk assessment purposes	Use risk assessment tools, such as decision analysis and Bayesian Belief networks to identify critical tradeoffs, then address scenarios and management options to clarify how likely they are to be successful	Coordinate with local to national planners and policy makers to adopt tools that improve the quality of decisions
Forest planning for climate change (TACCIMO; http://www.forestthreats.org/research/tools/taccimo)	WWETAC, Forest Service National Forest System, USDA Regional Climate Hubs	Track the continuous flow of published information that relates to climate change to create value-added summaries and products	Evaluate the impacts of climate change for planning purposes with planners and other collaborators to ensure that the best information is being considered	Engage agency planning teams to bring critical climate change information to bear on related decisions
Integrating Forest Health Monitoring (FHM) and Forest Inventory and Analysis (FIA) data	Forest Service FHM and FIA, NC State University	Derive and track value-added measures from FIA plot data to monitor forest health status	Integrate FIA and value added measures with other datasets to understand cause of change and to predict future conditions	Coordinate with forest health personnel and large scale forest planners and end users
Mapping the future of southern pine management (PINEMAP; http://pinemap.org/)	University partners (NC State University and others)	Monitor specific measures of change relevant to pine forests of the South	Build integrative models to predict climate change impacts and options	Work with the PINEMAP group and pine forest landowners to communicate options

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Predicting woody plant range changes from climate change (FORECAST; http://www.geobabble.org/~hnw/global/treeranges3/climate_change/)	NC State University, DOE Oak Ridge National Lab	Derive value-added measures from existing datasets that can be used for species modeling	Integrate recent climate change models with FIA and other distribution data to predict coarse range change for species	Engage with planners seeking to prioritize species and to implement species adaptation plans
Quantifying risks from exotic plants	University partners	Track exotic plant occurrences by integrating available datasets	Model and predict constraints and controls on species distribution and potential	Improve policy and land managers' knowledge of the most problematic invasives and how they can be managed and avoided
Quantifying risks from insects and diseases	Forest Service FHP and FHM, Canadian Forest Service, USDA APHIS, University partners	Integrate knowledge of pests in ways that inform assessment and predictions	Evaluate impacts from pests and predict their spread and impacts to values at risk	Coordinate with forest health personnel, large-scale forest planners, policymakers, and other end users
Systematic monitoring and tracking of phenology, disturbance, and recovery from satellite data (ForWarn; http://forwarn.forestthreats.org/)	WWETAC, NASA-Stennis, USGS EROS Data Center, Oak Ridge National Lab, UNCA-NEMAC	Systematically monitor forest health conditions at high frequency and 240m resolution through the year; Derive value-added measures that can be tracked such as declining or increasing trends in evergreen, deciduous, or grass components	Interpret the causes of observed change using ancillary data at different time scales including long-term trends in relevant metrics; Identify change that is not expected and predict future recovery after disturbance	Coordinate with Forest Health monitoring personnel, landowners, and jurisdictions after change is observed; Engage with planners seeking tools for systematic coarse filter monitoring
Understanding landscape pattern change and forest fragmentation	Forest Service FIA, FHM, and R&D QS, USGS, US EPA, European Commission Joint Research Centre, NC State University, National Park Service I&M	Using NLCD and global land cover maps, periodically generate value added maps of landscape and forest patterns and trends	Address the causes of pattern change by bringing other datasets to bear in ways that can lead to systematic understanding	Communicate with large scale planners and other risk managers about landscape hazards and potential management prioritization

Regional and national level wildland fire efforts	FPA, National and Regional Cohesive Strategy efforts, States	Value-added models of fire (e.g., Rx fire occurrence, monitoring fire hazards (ForWarn), hotspot clustering)	Integration of fire characterizations to address tradeoffs and predict long-term patterns (e.g., fire recovery, landscape dynamics and state transitions)	Workshops to fire decision makers (e.g., Cohesive Strategy, etc.)
Species distribution/habitat modeling	FWS, tribes, LCCs, others	Multi-scale habitat characterization using big datasets, such as phenoregions, LIDAR, land cover data, etc.	Integration of habitats with other assessment products; Predicting outcomes with scenarios and simulations.	Outreach and coordination with targeted end-users
Carbon productivity and management	Ameriflux	Eddy flux work, ForWarn's productivity	Modeling evapotranspiration (WaSSI-LAI) use for assessments and predictions	Outreach to targeted end users, workshops
Understanding weather disturbances	Climate hubs, CSCs, USDA agriculture, NOAA NCDC	ForWarn weather event mapping and attribution, seasonal onset monitoring and prediction	Modeling attribution and effects	Climate hub, ForWarn website and derived products; Forest Health drought report
Large scale resiliency and conservation	LCCs, NFS, DOI, DoD, States	ForWarn state transitions, persistence, change; value-added big data integration, genetics mapping, cross-scale patch resilience	Integrated assessments using indicators (e.g., LCC work), State's Forest Action Plans	Targeted outreach to agencies and entities
Urban forests	Urban areas	Urban landscape modeling, Hargrove-Edwards Urbanness Index, FIA urban data, urban stream management buffers	Modeling urban effects on seasonal changes in phenology, Urban pest risk mapping, integrating fire hazards and ignition in WUI, urban tree risk assessments	Targeted outreach to agencies and entities