

## FIA Adjunct Inventory Policy For Public Lands

**Background.** The USDA-Forest Service's Forest Inventory and Analysis (FIA) program is widely recognized as the most credible source of information on the status and conditions of America's forested lands. The credibility and statistical accuracy of these data and resulting analyses are essential to the continued use of FIA as a foundation for decision making regarding the management and protection of these lands. Because of the program's credibility and design, it provides an attractive basis for natural resource managers and research scientists to build additional inventory and monitoring activities upon.

### What is an Adjunct Inventory?

For the purposes of this policy an adjunct inventory is defined as an inventory or monitoring activity that falls outside of the FIA national core or regional FIA program and requires collection of data on or adjacent to the FIA plot.

### What are the benefits associated with adjunct inventory or monitoring activities?

**Build on a scientifically sound inventory base.** The national FIA inventory is designed to inventory and monitor forestland condition and trends over time. It is distributed across the landscape in a systematic grid so that it will produce statistically sound estimates of forest attributes. Using this information as the foundation of additional monitoring activities shows the importance of having a national standard inventory as well as providing consistent estimates throughout the monitoring community.

**Reduced cost of implementing a separate inventory.** Where the adjunct inventory is compatible with the national FIA inventory, the cost of adding additional measurements could be significantly less than conducting a separate inventory. Plot locations are permanently monumented and maps, photos, and other navigational materials are already available.

**Relying on existing expertise.** The existing expertise within the FIA program covers the range of functions from plot design, data collection, database management, statistical analysis and reporting, and quality assurance. The knowledge of how to put the pieces of an inventory or monitoring system together is a huge asset. In addition, the ability to guide the statistical design and analysis of large complex datasets is a critical piece of the success of the inventory or monitoring project.

What are the risks associated with adjunct inventory or monitoring activities that must be managed?

**Confidentiality of the plot location** as dictated by the 1985 Food Security Act, amended (P.L. 99-198) the FIA program is required to keep data associated with plot location and ownership confidential. In accordance with the Sample Location Privacy Policy, FIA can release coordinates for plots **only** on public lands to the Agency responsible for managing the land or to other cooperators during the interim policy period. This interim policy is intended to maximize the usefulness of the information on public land and thus maximize benefits to the taxpayers supporting the program. This would only be done under terms of a formal written agreement involving at a minimum the affected FIA unit(s) and the affected public land management officers, and when necessary cooperators. Land managers must agree to avoid treating the plot areas any differently than areas without plots to avoid sample bias. Managers will also be requested not to make this information available to any parties not listed in the agreement. Managers must understand that if these terms are violated, the plots may have to be abandoned and the data record severed.

**Protect the integrity of the plots.** All plot visits involve risk of impacting the elements of the plot (e.g. cutting or damaging trees, compacting soils, trampling vegetation). This could result in biased estimates if our permanent plot system becomes unrepresentative of the sample population of interest (all US lands). Since we have no control over access to sample locations, the best way to protect the locations is to keep them confidential.

**Protect the credibility of the FIA program for providing unbiased information.** If plot locations are commonly known, specifically by land managers, there may be accusations that land managers are manipulating the results of the inventory by management practices, e.g. by not harvesting forest contained on sample plots. Or if information on endangered or invasive species is collected management actions may be influenced on that site specifically rather than in the broader landscape. In addition to protecting the plot locations, the FIA program will be developing a QA/QC process to provide an estimate of detectable bias.

**Policy.** Because there has been increasing interest in leveraging the FIA grid-based inventory for adjunct inventory and monitoring purposes on public land, we have established the following policy and rules for adjunct uses of the inventory plots to ensure that the credibility and statistical accuracy of the FIA program are maintained. The following policy is for **public lands only**.

**Confidentiality** –The confidentiality law, its protections, and its penalties are binding not only on the FIA program but also on any partners and cooperators who have access to the data. Appropriate security measures must be in place and there will be recognition by partners and cooperators of the provisions of the amended Food Security Act.

**Plot Integrity** – There will be no destructive sampling done on the FIA plot (hectare area). The number of visits to an FIA plot within a cycle should be minimized and any material impacts on the site must be avoided. While there is no definitive study that describes how many visits can be made to plot before the vegetation is degraded, we should strive for the minimum number of visits to a plot within an inventory cycle. FIA should work with the adjunct inventory proponent to see if data collection can be done by the FIA field crew during their visit to the plot. This will increase efficiencies in data collection, while protecting the plot. Multiple visits within one inventory cycle will be discouraged. The adjunct inventory proponent needs to work with the local FIA program to ensure that the number of visits per year or per cycle and the data collection methodology are consistent with the primary goal of the FIA program. This must be documented in a formal agreement that outlines specifics of the activities and responsibilities before any adjunct inventory activity begins.

**Management Impact** –The adjunct inventory and monitoring activities should be used to provide information for informed management decisions, policies, and monitoring of trends over time. The management of the plot and immediately surrounding area of which the plot represents must not change as a result of the information obtained in the adjunct inventory. Therefore, no data collection should be allowed that would result in management action that permits differential management of the FIA plot.

**Mitigation**—There needs to be a written agreement between the public land manager and the FIA program, and the cooperator (if the adjunct inventory proponent is other than the land manager) that addresses each of the three above issues and also describes what action will be taken if bias to the FIA inventory is introduced by the adjunct inventory. The agreement must include an assessment of potential risks, cost of replacing the plot or plots, alternative options (new plots or alternative grids), mechanism for determining if management is affected, and responsible officials. The mitigation of any loss or impact to the FIA plots will be the responsibility of the adjunct inventory proponent.

**Approval**—In consultation with the public land manager, Regional FIA Program Manager and Station Directors have the authority to approve any requests for any inventory or monitoring activity that falls outside of the FIA national core or regional FIA program and requires collection of data on or adjacent to the FIA plot. This approval will be documented in a formal agreement between the participating parties.

The terms of agreement at a minimum will do the following:

- a. Refer to a written study plan describing the objectives of the adjunct inventory or monitoring activity, where and why the exact FIA plot coordinates are needed, and how the data will be used.
- b. Set a definite sunset date after which time all coordinates are purged from cooperator paper and electronic files.
- c. Confidentiality – all protections and penalties of the amended Food Security act will apply to all parties and their cooperators for this agreement. Security measures must be in place to protect the plot location information.
- d. Guarantee that there will be no subsequent sharing or release of coordinates by the land manager or cooperator, if any.
- e. Plot Integrity -- There will be no destructive sampling done on the FIA plot (hectare area). Number of visits to the plot will be minimized and specified.
- f. Management Impact—The land manager must agree that the management of the plot and immediately surrounding area of which the plot represents must not change as a result of the information obtained in the adjunct inventory
- g. Mitigation—describe what action will be taken if bias to the FIA inventory is introduced by the adjunct inventory. This includes an assessment of potential risks, cost of replacing the plot or plots, alternative options (new plots or alternative grids), mechanism for determining if management is affected, and responsible officials. The mitigation of any loss or impact to the FIA plots will be the responsibility of the adjunct inventory proponent
- h. State that no plot visits will occur without FIA permission, and that there will be no destructive sampling on plots.
- i. Guarantee that the appropriate FIA unit(s) receive credit in all resulting pubs for the grant of data.
- j. Provide for periodic reporting on the status of the inventory and monitoring activity, including where the coordinates are currently located and who has access to them.

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**Process:** The following process describes a decision tree to assist FIA Program Managers evaluate adjunct inventory proposals:

1. Is the proponent of the inventory or monitoring activity proposing activities on public lands?

If Yes, go to 2.

If No, STOP – This policy only covers public lands.

2. Is the proposed monitoring or inventory activity dependent upon FIA plot data (either the FIA or intensified plots) for success?

If Yes, go to 3

If No, relocate monitoring or inventory plot. This location should not be on the 'grid' and should not potentially compromise data collected on 'intensified' plot locations.

3. Is the proposal based upon the use of FIA crews in concert with the base FIA program that could lead to either a National or Regional core addition or improve the sampling methods used in the base program?

If Yes, the Regional FIA Manager should consider approval of the project, subject to consideration of an analysis of costs and potential impacts and benefits.

If No, go to 4.

4. Will data be generated that could lead to management changes or decisions that would bias FIA sampling or data?

If Yes, the activity should **not** be approved by the Regional FIA Manager

If No, go to 5.

5. Does the monitoring or inventory activity require a separate data collection program or protocol independent from the FIA protocol or current panel?

If Yes, go to 6

If No, the Regional FIA Manager should consider approval of the project, subject to consideration of an analysis of costs and potential impacts and benefits, impacts and feasibility of mitigation, and assurance of confidentiality.

6. Conduct a specific evaluation of the monitoring protocol to determine potential conflicts with and risks to the FIA base program plus Regional add-ons.

If a conflict is identified, go to 7.

If there are no conflicts, document the evaluation and proceed with both programs on the plot. The Regional FIA manager should consider approval of the proposal and document the evaluation in the formal agreement. In addition, the Regional Management Team (RMT) could consider these data elements for Regional add-ons. The RMT should consider the use of Monitoring Advisors to ensure that the add-ons and data processing are meeting the needs of the inventory or monitoring protocol.

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7. In consultation with the appropriate public land manager, the Regional FIA Manager and Station Director will make a case-by-case determination based on the documentation prepared by the project personnel who are proposing the link to the FIA plots.