

**Forest Service Handbook
National Headquarters (WO)
Washington, DC**

Forest Service Handbook 2409.14 – Timber Management Information System Handbook

Chapter 60 - Reforestation and Timber Stand Improvement

Amendment: 2409.14-1994-7

Effective date: August 12, 1994

Duration: This amendment is effective until superseded or removed.

Approved by: Jack Ward Thomas, Chief

Date approved:

Responsible Staff:

Last Change: Amendment 2409.14-94-6 to FSH 2409.14,40

Superseded Document(s): 2409.14,60, Amendment 2409.14-93-1

Digest: Following is an explanation of the changes throughout the directive by section.

60: Updates references and makes minor editorial changes for clarity throughout the chapter. Replaces references to sections 71-78 with references to the Timber Activity Control System (TRACS) Data Dictionary and User Guide and the Standards for Data and Data Structures Handbook, FSH 6609.15. Clarifies references to TRACS-SILVA.

Forest Service Handbook 2409.14 – Timber Management Information System Handbook
Chapter 60 - Reforestation and Timber Stand Improvement
Amendment: 2409.14-1994-7
Effective date: August 12, 1994
Table of Contents

61 - Reforestation (ET24)	3
61.1 - Required Reforestation Data Elements	4
61.2 - Types of Reforestation Activities	5
61.21 - Site Preparation for Natural Regeneration (ET241)	5
61.22 - Reforestation Planting (ET242)	5
61.22a - Planting (ET242-1)	5
61.22b - Planting with Site Preparation (ET242-2)	5
61.22c - Site Preparation for Outyear Planting (ET242-3)	6
61.3 - Reforestation Seeding (ET243-1)	6
61.31 - Direct Seeding and Reseeding with Site Preparation (ET243-2)	6
61.32 - Site Preparation for Outyear Seeding (ET243-3)	6
61.4 - Reforestation - Animal Control (ET244)	7
61.5 - Reforestation - Certification (ET245)	7
61.51 - Certification of Natural Regeneration Areas (ET245-1)	7
61.51a - Certification of Natural Regeneration Areas with Site Preparation (ET245-11)	7
61.51b - Certification of Natural Regeneration Areas without Site Preparation (ET242-12)	7
61.52 - Certification of Stocking in Planted Areas	8
62 - Timber Stand Improvement (ET25)	8
62.1 - Required Timber Stand Improvement Data Elements	9
62.2 - Types of Timber Stand Improvement Activities	9
62.21 - Release and Weeding (ET251)	9
62.22 - Precommercial Thinning (ET252)	10
62.23 - Pruning (ET253)	10
62.24 - Fertilization (ET255)	10
62.25 - Animal Control (ET256)	10
62.26 - Timber Stand Improvement Certification (ET257)	10
62.3 - Optional Data Elements	11

61 - Reforestation (ET24)

When reporting reforestation information, include all treatments and associated work to reestablish a tree cover on forest land. See FSH 1309.16, National Activity Structure Handbook, for national activity structure codes. Include the preparation of the ground surface prior to natural seed fall, natural sprouting, artificial seeding, or planting. Include the setting out of seedlings, cuttings or transplants, and the scattering or placement of seed over a designated area for the reestablishment of a forest stand. Include animal control measures. Provide information for the total area treated for which force account work is actually performed or for which contracts for treatments are awarded and funding is obligated.

Report reforestation accomplishment and needs in the Timber Activity Control System Silvicultural Activities (TRACS-SILVA) as required in FSM 2496.1. Operational instructions for TRACS-SILVA are found in the TRACS User Guide (sec. 70.6). Use TRACS-SILVA to load reforestation information into the Management Attainment Report (MAR). Load the TRACS-SILVA data base before the MAR due dates. Use the following guidelines for determining when and what to report:

1. Contract Work. Report all contracted work as accomplished at the time of contract award and not when work is physically completed. If a contract defaults, do not delete the accomplishment and do not report reprocrements of defaulted contracts as accomplishment. Where contract acreage is reduced after award, for reasons other than contractor default in the same fiscal year as the award, report the reduced acreage.
2. Force Account Work. Report all force account work at the time of completion and in completed units compatible with the recordkeeping system. Do not divide units for reporting partial treatment accomplishments unless the area will be managed as two or more separate units in the future.
3. Consistent Acreage. Report needs, request funding, and report accomplishments for the same acreage amounts. Acreages used must be the most accurate available for areas treated.
4. Site Preparation. If site preparation for natural regeneration is a two-step process, such as burning followed by scarification, report accomplishment only when the second step is accomplished. This is contract award if the second step is contracted, or finished work if it is a force account project.

5. Joint Accomplishment. In some situations, one action such as a slash disposal activity may accomplish both fuel abatement and site preparation. When this is planned, allocate funding for the activity between the funding sources, but report the total acreage as a need and an accomplishment for each funding source. For example, burning a 40-acre unit is needed both to reduce the fuel hazard and to prepare the site for natural regeneration on the area. The treatment cost may be split according to regional direction, but fire and timber management functions should each request 40-acre targets and report 40-acre treatments accomplished.

6. Data Base Updates. As a minimum, update the data base within 15 days following the end of each fiscal quarter, and within 45 days following the end of the fiscal year. Updating procedures may vary by region.

61.1 - Required Reforestation Data Elements

See chapter 70 for data standards. Separate entries are required for each activity by forest type, productivity class, and fund. The following data elements are required:

1. Site Productivity Class (TRACS Data Dictionary and User Guide)
2. Forest Type (TRACS Data Dictionary and User Guide).
3. Forest Service Region (FSH 6609.15).
4. Administrative Unit (FSH 6609.15).
5. State (FSH 6609.15).
6. Area Acres (TRACS Data Dictionary and User Guide).
7. Fiscal Year (TRACS Data Dictionary and User Guide).
8. Fiscal Quarter (TRACS Data Dictionary and User Guide).
9. Fund Source (TRACS Data Dictionary and User Guide).
10. Harvest Activity (TRACS Data Dictionary and User Guide).
11. Land Suitability Class (TRACS Data Dictionary and User Guide).
12. Month Accomplished (TRACS Data Dictionary and User Guide).
13. Planting Stock (TRACS Data Dictionary and User Guide).
14. Plantation Survey Year (TRACS Data Dictionary and User Guide).

15. Plantation Survival Percent (TRACS Data Dictionary and User Guide).
16. Regional Timber Species (TRACS Data Dictionary and User Guide).
17. Seed Source (TRACS Data Dictionary and User Guide).
18. Silvicultural Needs Activity (TRACS Data Dictionary and User Guide).

61.2 - Types of Reforestation Activities

61.21 - Site Preparation for Natural Regeneration (ET241)

Report actions that prepare the ground surface in anticipation of natural seedfall, sprouting, or suckering for the reestablishment of the tree crop or tree cover. Include removal of unwanted vegetation, slash, stumps, and roots on the site, and the shaping of the ground surface. Include any one or a combination of the following types of treatments: soil disturbance, by hand or by mechanical furrowing, dozing, or discing, mechanical or chemical manipulation of vegetative cover to reduce plant competition; and prescribed burning of the vegetative cover, including dozer piles. Include accurate recordkeeping, maps, and data bases. Do not include animal control.

61.22 - Reforestation Planting (ET242)

Report the setting out of seedlings (including wildlings), transplants, or for certain species, cuttings on a deforested area for the establishment of a forest stand or tree cover. Include all work related to tree planting, such as labor to physically place trees in ground, including transportation and care of planting stock; animal and disease control work done as an integral part of planting, such as fungicide dips, or protective tubing; contract preparation; layout of planting area; and inspection of planting crews and planting site. Include all areas planted by force account crews, contractors, or other persons. Include accurate recordkeeping, maps and data bases. The minimum objective is to achieve stocking numbers above that level needed for certification.

61.22a - Planting (ET242-1)

Report all planting activities on areas with already prepared sites, regardless of how the planting is accomplished. Do not include site preparation with these activities.

61.22b - Planting with Site Preparation (ET242-2)

Report this activity when site preparation is included as an integral part of the planting process and when it is more than the preparation of individual planting holes. Include all associated actions, such as the setting out of seedlings (including wildlings), transplants, or for certain species, cutting on a deforested area for the establishment of a forest stand or tree cover. Include all work related to tree planting, such as labor to

physically place trees in ground, including transportation and care of planting stock; animal and disease control work done as an integral part of planting; contract preparation; layout of planting area; and inspection of planting crews and planting site. Include accurate recordkeeping, maps, and data bases. The minimum objective is to achieve stocking numbers above that level needed for certification.

61.22c - Site Preparation for Outyear Planting (ET242-3)

Report the preparation of the ground surface on sites to be planted in a later year and include removal of unwanted vegetation, slash, stumps and roots from a site and the shaping of the ground surface. Include one or a combination of the following types of treatment: soil disturbance, by hand or by mechanical furrowing, dozing, or discing; mechanical or chemical manipulation of vegetative cover to reduce plan competition (including dozer piles); and fertilization if done prior to planting. Include accurate recordkeeping, maps, and data bases. Do not include animal control.

61.3 - Reforestation Seeding (ET243-1)

Report the scattering or placement of seed more or less evenly over a designated area for the establishment of a forest stand or tree cover. This includes broadcast, partial, full, or aerial seeding. Include all related work, such as transportation, treatment, and care of seed; animal and disease control work done as an integral part of seeding; contract preparation; layout of seeding area; inspection of seeding operation and site during or immediately following seeding. Include all areas seeded by force account crews, contractors, or other persons. Include accurate recordkeeping, maps, and data bases. The minimum objective is to achieve stocking numbers above that level needed for certification. Do not include site preparation in this activity.

61.31 - Direct Seeding and Reseeding with Site Preparation (ET243-2)

Report accomplishment of the scattering or placement of seed more or less evenly over a designated area for the purpose of establishment of a forest stand or tree cover. Include broadcast, partial, full, or aerial seeding when site preparation is an integral concurrent part of the seeding process. Include all related work, such as transportation, treatment, and care of seed; animal and disease control work done as an integral part of seeding; operation and site preparation during or immediately following seeding. Include all areas seeded by force account crew, contractors, or other persons. Include accurate recordkeeping, maps, and data bases. The minimum objective is to achieve stocking numbers above that level needed for certification.

61.32 - Site Preparation for Outyear Seeding (ET243-3)

Report the preparation of the ground surface before seeding, including removal of unwanted vegetation, slash, stumps and roots from a site and the shaping of the ground surface. Site preparation done as an integral part of seeding should be shown as

seeding. Include one or a combination of the following types of treatments: soil disturbance, by hand or by mechanical furrowing, dozing, or discing; mechanical or chemical manipulation of vegetative cover to reduce plant competition; prescribed burning of the vegetative cover (including burning dozer piles) done prior to seeding. Include all areas prepared by force account crews, contractors, or other persons. Include accurate recordkeeping, maps, and data bases. The unit of work is the number of acres prepared for seeding by force account work or for which contracts are awarded.

61.4 - Reforestation - Animal Control (ET244)

Report the control of animals to protect planted, seeded, or naturally regenerated stands from damage. This control may occur prior to the reforestation and up until the plantation or stand is established. Examples of control treatment are: fence construction and maintenance; trapping, killing and removing animals; poison baiting; and placing repellents. Include all work done by force account crews, contractors, or other persons. Include accurate recordkeeping, maps, and data bases.

61.5 - Reforestation - Certification (ET245)

Report the certification of stocking level above a defined minimum, in terms of number and distribution of acceptable species, whether planted, seeded, or through natural regeneration. Before an area of deforested land may be certified as satisfactorily stocked, the reestablished tree seedlings must have survived and be thriving two or more full growing seasons after planting or seeding.

61.51 - Certification of Natural Regeneration Areas (ET245-1)

Report the certification of stocking level, above a defined minimum level, in terms of numbers and distribution, of natural reproduction from existing seed sources, stump sprouts, root suckers, or other parent material on an area of deforested land.

61.51a - Certification of Natural Regeneration Areas with Site Preparation (ET245-11)

Report the certification of stocking level, above a defined minimum level, in terms of numbers and distribution, of natural reproduction from existing seed sources, stump sprouts, root suckers, or other parent material on an area of deforested land where prior site preparation had been done.

61.51b - Certification of Natural Regeneration Areas without Site Preparation (ET242-12)

Report certification of stocking level, above a defined minimum level, in terms of numbers and distribution, of natural reproduction from existing seed sources, stump sprouts, root suckers, or other parent material on an area of deforested land when prior site preparation had not been done.

61.52 - Certification of Stocking in Planted Areas

Report the certification of stocking level, above a defined minimum level, in terms of number and distribution of acceptable species, whether planted, seeded, or through natural regeneration. Before an area of deforested land may be certified as satisfactorily stocked, the reestablished tree seedlings must have survived and be thriving two or more full growing seasons after planting or seeding. The unit of work is the number of acres certified as satisfactorily stocked.

62 - Timber Stand Improvement (ET25)

When reporting timber stand improvement information (TSI), include all noncommercial intermediate cuttings and other treatments to improve the composition, structure, condition, and increment of a timber stand. Include the following specific activities: precommercial thinning, release and weeding, pruning and fertilizing of established stands. Other specific activities supporting timber stand improvement are control of understory vegetation and animal control measures. This activity includes all work actually accomplished through force account or for which contracts have been awarded.

Specific instructions for recording timber stand improvement accomplishment and needs in the data base are found in the Timber Activity Control System (TRACS) User Guide (sec. 70.6). TRACS-SILVA information is used to load the Management Attainment Report (MAR). The TRACS-SILVA data base must be loaded and edited by each region before the MAR due dates. Use the following guidelines:

1. Contract Work. Report all contracted work as accomplished at the time of contract award and not when work is physically completed. If a contract defaults, do not delete the accomplishment nor report reprocurments of defaulted contracts as accomplishment. Where contract acreage is reduced after award, for reasons other than contractor default in the same fiscal year as the award, report the reduced acreage.

2. Force Account Work. Report all force account work at the time of completion and in completed units compatible with the recordkeeping system. Do not divide units for reporting partial treatment accomplishments unless the area will be managed as two or more separate units in the future.

3. Consistent Acreage. Report needs, request funding, and report accomplishments for the same acreage amounts. Acreages used must be the most accurate available for areas treated.

4. Joint Accomplishment. In some situations, an activity such as slash disposal may accomplish both a fuel abatement and a timber stand improvement such as weeding. When this is planned, allocate funding for the activity between the benefiting resources, but report the total acreage is a need and an accomplishment for each

benefiting resource. For example, under-burning a 40-acre unit to reduce the fuel hazard and to reduce hardwood competition may be split in cost, in accordance with regional direction, but fire and timber management functions should each request 40-acre targets and report 40-acre treatments accomplished.

5. Data Base Updates. As a minimum, update the data base within 15 days following the end of each fiscal quarter, and within 45 days following the end of the fiscal year. Updating procedures may vary by Region.

62.1 - Required Timber Stand Improvement Data Elements

See chapter 70 for data standards. The following data elements are required:

1. Site Productivity Class (TRACS Data Dictionary and User Guide).
2. Forest Type (TRACS Data Dictionary and User Guide).
3. Forest Service Region (FSH 6609.15).
4. Administrative Unit (FSH 6609.15).
5. State (FSH 6609.15).
6. Area Acres (TRACS Data Dictionary and User Guide).
7. Fiscal Year (TRACS Data Dictionary and User Guide).
8. Fiscal Quarter (TRACS Data Dictionary and User Guide).
9. Fund Source (TRACS Data Dictionary and User Guide).
10. Harvest Activity (TRACS Data Dictionary and User Guide).
11. Land Suitability Class (TRACS Data Dictionary and User Guide).
12. Month Accomplished (TRACS Data Dictionary and User Guide).
13. Silvicultural Needs Activity (TRACS Data Dictionary and User Guide).

62.2 - Types of Timber Stand Improvement Activities

62.21 - Release and Weeding (ET251)

Report all work done to free desirable trees from competition with overstory trees, less desirable trees, grasses, and other forms of vegetative growth. Include incidental

disease control work, release of natural and artificial regeneration, accompanying work to eliminate related fuel accumulations, contract preparation, accurate reports, maps and data bases. Include work in all areas treated by force account crews, contractors, and other persons.

62.22 - Precommercial Thinning (ET252)

Report the selective felling, deadening, or removal of trees in a young stand primarily to accelerate diameter growth, improve vigor and quality on the remaining trees and maintain a specific stocking or stand density. Include the treatment or disposal of the resulting slash, salvage of thinned trees, incidental disease control, and accurate recordkeeping, maps, and stand data. Record the unit of work in acres when treated by force account crews, other people, or when contracts have been awarded.

62.23 - Pruning (ET253)

Report the removal, close to or flush with the stem, of superfluous side branches, live or dead, and of multiple leaders from selected crop trees for the improvement of the tree or the quality of its timber. Include incidental disease control work done as an integral part of the pruning job, such as removal of dwarf mistletoe and blister rust. Include accurate recordkeeping, maps, and stand data. Record the unit of work in acres when treated by force account crews, other people, or when contracts have been awarded.

62.24 - Fertilization (ET255)

Report the enrichment of forest soils with chemical nutrients or natural manures for the purpose of increasing or maintaining tree growth and vigor. Include the application of fertilizers by force account crews, contractors, or others, coordination with other resource management programs, and accurate recordkeeping including maps and stand data. The unit of measure is acre and includes all work by force account crews, other people and awarded contracts.

62.25 - Animal Control (ET256)

Report the control of animals, such as porcupines, gophers, or deer in established natural stands or plantations. This may include trapping, killing, fencing, and removing animals; placing of repellents, and so on. Include coordination with other agencies, adjacent landowners, other resource management programs and accurate record keeping including maps and stand data. The unit of measure is acre and includes all work accomplished by force account crews, others and awarded contracts.

62.26 - Timber Stand Improvement Certification (ET257)

Certify in writing that the treatment met the treatment prescription objectives. For thinning, certify that the stocking of desired residual trees meets prescribed standards. For release, certify that stocking of free-to-grow trees of desirable species meets

prescribed minimums. The unit of accomplishment is the number of acres meeting prescribed prescription standards.

62.3 - Optional Data Elements

If desired, use additional data elements to characterize, identify, or locate reforestation and timber stand improvement activities. The following are commonly used as optional data elements:

1. Subunit (FSH 6609.15).
2. Analysis Area (TRACS Data Dictionary and User Guide).
3. Area Identifier (TRACS Data Dictionary and User Guide).
4. Management Area (TRACS Data Dictionary and User Guide).
5. Timber Activity Method (TRACS Data Dictionary and User Guide).
6. Working Group (TRACS Data Dictionary and User Guide).
7. Compartment (sec. 74).
8. Stand Number (sec. 74).