



U.S. Department of Agriculture  
Office of Inspector General  
Western Region  
Audit Report

FOREST SERVICE  
NATIONAL LANDOWNERSHIP  
ADJUSTMENT TEAM  
WASHINGTON, D.C.



**Report No.  
08601-27-SF  
March 2002**



UNITED STATES DEPARTMENT OF AGRICULTURE

OFFICE OF INSPECTOR GENERAL

Washington D.C. 20250



DATE: March 28, 2002

REPLY TO

ATTN OF: 08601-27-SF

SUBJECT: Forest Service National Landownership Adjustment Team, Washington, D.C.

TO: Dale Bosworth  
Chief  
Forest Service

This report presents the results of our audit of the Forest Service National Landownership Adjustment Team (NLAT). Our audit objective was to determine if NLAT is accomplishing its mission, which is to ensure that landownership adjustment transactions comply with applicable FS policy, regulations, and law, and that the public's interest is protected. Our audit concluded that NLAT's oversight of the FS land adjustment program was effective and that its effectiveness would be enhanced if the updates and revisions to the existing policies and procedures were finalized in the FS manual and handbook. Our audit also noted the need for additional controls over the estimation of timber volumes used in land exchange appraisals.

Your written response to the draft report is included in its entirety as exhibit B. Based on your response, we have accepted management decisions on all audit recommendations. We appreciate the prompt corrective actions initiated by the FS Washington Office lands staff to address the conditions noted in the report.

The Office of the Chief Financial Officer (OCFO) has responsibility for monitoring and tracking final action for the audit recommendations. Please follow your agency's internal procedures in forwarding final action correspondence to OCFO.

We appreciate the assistance and cooperation provided by your staff during the audit.

/s/

ROBERT W. YOUNG, JR.

Deputy Assistant Inspector General  
for Audit

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# EXECUTIVE SUMMARY

FOREST SERVICE  
NATIONAL LANDOWNERSHIP  
ADJUSTMENT TEAM  
WASHINGTON, D.C.

REPORT NO. 08601-27-SF

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## RESULTS IN BRIEF

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This report presents the results of the U.S. Department of Agriculture, Office of Inspector General's (OIG) audit of the National Landownership Adjustment Team (NLAT)

effectiveness in reviewing land exchange transactions under the land adjustment program at the Forest Service (FS).

Under the land adjustment program, the FS acquires new land, either through purchases or exchanges, in order to further FS objectives; protecting natural resources, increasing recreation opportunities, etc. In an effort to increase the accountability and consistency of this program, the FS Washington Office (WO) drafted additional procedures that further strengthened processing and appraisal controls over land exchanges. The WO also created the NLAT in November 1998 to provide additional oversight over significant and/or sensitive land exchanges processed by the regions. Since its inception, the team has reviewed the majority of FS land exchanges over \$500,000, as well as many proposals below that threshold involving high public concern or complexity, to ensure that they are consistent with laws, regulations, and FS policy.

Our audit objective was to determine if the NLAT is accomplishing its mission, which is to ensure that landownership adjustment transactions comply with applicable FS policy, regulations, and public law, and that the public's interest is protected.

We reviewed 12 pending or recently completed land exchange transactions subject to NLAT review in three FS regions, including the Northern Region (Region 1), Southwestern Region (Region 3), and Pacific Northwest Region (Region 6). These transactions involved 21,949 Federal acres, and 27,967 non-Federal acres valued at about \$45.4 million.

Our audit concluded that the NLAT's oversight of the FS land adjustment program was effective. The NLAT ensured that FS land exchange transactions complied with laws, regulations, policies and procedures. As a result, there is reasonable assurance that FS land adjustments subjected to an NLAT review will be of equal value and serve the public interest. However, the NLAT's effectiveness would be enhanced if updates and revisions to existing landownership policies and procedures, drafted by FS staff over the last several years, were finalized in the FS Manual and Handbook. To date, those additional controls are still in draft form and could be subject to manipulation or revision until they are published in their final form.

Although we found the NLAT reviews to be effective, our audit did identify the need for additional controls over the estimation of timber volumes used in land exchange appraisals. We found inconsistent cruise methodologies were used to estimate timber volumes on Federal and non-Federal parcels. Further, timber volumes and appraised values were inappropriately based on FS merchantability specifications rather than market practices. And finally, outdated timber volume estimates were significantly reduced without re-cruising affected tracts to ensure reductions were accurate. These problems occurred because current FS appraisal directives did not provide sufficient guidance on the design and implementation of timber cruises conducted for land exchanges. As a result, timber volumes estimated in land exchanges, and the resultant appraised values, were inconsistent and potentially inaccurate.

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## **KEY RECOMMENDATIONS**

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We recommend that the FS (1) continue to utilize the NLAT until all regional lands staff clearly demonstrate the ability to provide the necessary oversight and guidance to the landownership adjustment program, and continue some form of national oversight even after regional competency has been attained; and (2) finalize revisions to the FS Manual and Handbook that provide expanded direction and guidance specifically addressing issues previously identified by OIG, that incorporate land adjustment policy revisions and updates, and that reflect current regulatory and authority provisions.

To more accurately establish appraised values for land exchanges involving timberlands, we also recommend that the FS revise its current Appraisal Handbook direction to (1) require cruise plans that provide consistent cruise methodologies and comparable sampling errors when estimating timber volumes on Federal and non-Federal parcels; (2) specify the conditions or events that necessitate re-cruising timber volumes used

to establish land exchange values; and (3) clarify the meaning of “market practices” as the standard for the timber cruise designs.

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**FS RESPONSE**

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In its written response to the draft report, the FS generally concurred with the audit recommendations. The complete FS response is shown in exhibit B of the report.

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**OIG POSITION**

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Based on FS’ written response, OIG accepted FS’ management decisions for all the audit recommendations.

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## INTRODUCTION

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### BACKGROUND

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In August 1998, OIG issued an audit report on the Humboldt-Toiyabe National Forest Land Adjustment Program (Audit Report No. 08003-02-SF). This report identified a serious breakdown of controls in all phases of the land adjustment program on the forest. This included FS management allowing private parties (landowners and third-party facilitators) to exert undue influence over the direction and outcome of almost all large-value land exchanges in the forest. Subsequent to this report, OIG issued several additional reports relating to specific land exchanges. The OIG report on the Zephyr Cove Land Exchange (Audit Report No. 08003-06-SF), issued in July 2000, identified additional weaknesses in controls.

The General Accounting Office (GAO) issued a report on the Bureau of Land Management (BLM) and FS land exchanges in June 2000 (Audit Report No. RCED-00-73). This report concurred with all of OIG's previous findings and went even further, suggesting that Congress consider discontinuing the BLM and FS land exchange programs altogether.

In response to these criticisms, the FS took immediate action to strengthen all aspects of its land exchange program. One of these actions was the creation of the NLAT in November 1998. This team was charged with providing oversight and guidance to the regions by reviewing all land exchange transactions over \$500,000, and transactions with a lesser value that involved strong public concern, complexity, or the potential for fraud and abuse. The NLAT review is meant to ensure that FS land exchanges are consistent with law, regulations, and policy, and that they serve the public interest.

The NLAT is composed of a team leader, a realty specialist with land law expertise, and a senior review appraiser, selected from among the most experienced FS realty staff. Proposed transactions are reviewed at two stages of the land exchange process. The first review occurs at the feasibility stage, after forest and regional realty staff have initially evaluated proposals. The second review occurs at the decision document stage, after the proposal has been subjected to an in-depth analysis and the responsible official is prepared to approve the land exchange and

finalize the transaction. Transactions subject to NLAT review cannot proceed without explicit clearance of the team.

NLAT reviews are scheduled after regional oversight has been completed and the required case documents are ready for review. The primary role of the NLAT is to assess the adequacy of pending land exchange transactions after a “best effort” has been made by the regional and forest realty staff. It is the stated goal of the WO to phase out the NLAT once all regions have consistently demonstrated their ability to provide the necessary guidance and oversight of the landownership adjustment program. Since its inception in November 1998, the NLAT has reviewed approximately 100 proposed or pending land exchange transactions.

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## **OBJECTIVES**

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Our audit objective was to determine if the NLAT is accomplishing its mission, which is to ensure that landownership adjustment transactions comply with applicable FS policy, regulations, and public law, and that the public’s interest is protected.

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## **SCOPE**

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To accomplish our objective we analyzed pending or recently completed land exchange transactions in Regions 1, 3, and 6 that NLAT reviewed between November 1998 and March 2001. The NLAT had previously ranked realty staff in these regions as possessing a diverse range of land competency skills. Of the 52 land exchanges reviewed by NLAT, we judgmentally selected 12 having the highest dollar values or that were complex in nature. These transactions accounted for 27,967 non-Federal acres and 21,949 Federal acres, valued at over \$45 million (see exhibit A).

The audit was conducted in accordance with generally accepted government auditing standards. The audit fieldwork was performed from June through October 2001.

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## **METHODOLOGY**

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To accomplish our review of NLAT effectiveness, we performed the following steps and procedures.

- We reviewed pertinent public laws; the *Uniform Appraisal Standards For Federal Land Acquisitions*; and FS regulations, manuals, and handbooks related to land exchanges.



- We analyzed and summarized the action items and recommendations contained in the NLAT reviews of the 12 sampled land exchange cases, and interviewed the NLAT members to discuss the sampled transactions and current land exchange policies, procedures and direction.
- At selected regional offices, we reviewed documentation associated with the sampled transactions, as well as RO reviews to determine the nature and extent of their oversight.
- After identifying the NLAT and RO action items and recommendations, we reviewed the land exchange case files maintained at the forests, and interviewed realty staff as necessary to determine if action items and recommendations were adequately addressed by FS staff.
- We then analyzed each of the sampled landownership adjustments to determine if the NLAT reviews effectively ensured these transactions complied with law, regulation, policies and procedures, and served the public interest.
- We also interviewed FS review appraisers and check cruisers to discuss the general appraisal and timber cruise processes, as well as specific appraisal procedures and cruise methodologies utilized for the exchanges sampled.

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## FINDINGS AND RECOMMENDATIONS

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<b>CHAPTER 1</b>	<b>NLAT OVERSIGHT OF THE LANDOWNERSHIP ADJUSTMENT PROGRAM WAS EFFECTIVE</b>
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### FINDING NO. 1

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Our review concluded that NLAT's oversight of the FS land adjustment program was an effective control in protecting the integrity of the land exchange program. The NLAT

ensured that FS land exchange transactions complied with laws, regulations, policies and procedures. As a result, there is reasonable assurance that FS land adjustments subjected to an NLAT review will be of equal value and serve the public interest. Our audit identified four specific cases where the NLAT review was critical in preventing the processing of questionable land transactions by regional office staff.

In order to evaluate the effectiveness of the NLAT review, we judgmentally selected 12 pending or completed land exchange transactions from Regions 1, 3 and 6. We analyzed the case files and the NLAT and RO reviews associated with each sampled transaction, and concluded that the NLAT reviews effectively ensured that FS landownership adjustments complied with laws, regulations, policies and procedures.

In each of the three regions selected for review, we determined that the NLAT identified and corrected significant procedural errors in transactions subject to its oversight, and served as a key control over the proper processing of FS land exchanges.

#### Inappropriate Use of Categorical Exclusions

In Region 1, realty staff inappropriately elected to exclude the Butter N' Eggs Land Exchange from environmental analysis required under the National Environmental Policy Act (NEPA). Although NEPA allows certain Federal actions to be categorically excluded from environmental analysis, this land exchange did not meet the necessary requirements for exclusion because it involved the net loss of 80 acres of Federal wetlands.

Realty staff initially thought the use of the categorical exclusion was appropriate because the Federal parcels being conveyed in the Butter N' Eggs Land Exchange had been subjected to an environmental analysis during a previous land exchange proposal, and because staff believed the future use of the Federal land (designated as timber management in the forest plan) would remain essentially the same after its transfer to a private timber company.

However, NLAT team members determined that the Region's use of the categorical exclusion was inappropriate because:

- the loss of Federal wetlands represented an "extraordinary circumstance" (as specified in FS direction) which automatically required the completion of either an environmental impact statement or an environmental assessment.
- the use of the Federal land after the exchange would not remain 'essentially the same' because the timber management practices of private companies differed from the timber management practices of the FS.

As a result of the NLAT's recommendations, the RO reversed its decision to proceed with this transaction and subjected the Butter N' Eggs Land Exchange to environmental analysis and public comment. In addition, the WO determined that additional oversight was needed in the proper use of categorical exclusions, and issued direction to realty staff requiring WO/NLAT concurrence on its use in all future land exchanges.

#### Improper Credit to a Land Exchange Proponent

In Region 3, realty staff were preparing to issue a credit of \$385,000 to the Woo Ranch Land Exchange proponent because they erroneously believed this payment was authorized by recently passed legislation. In fact, the legislation in question only authorized credits in FS lands sales. It did not authorize the payment of credits in FS land exchanges.

The Woo Ranch Land Exchange proposed to transfer 251 acres of FS land to the City of Sedona, Arizona in exchange for 100 acres of privately owned ranch land. The City was already using the FS land as a wastewater effluent disposal area, and had paid \$406,000 in special use fees over the previous 3-year period. Approximately 8 months after the land exchange was initiated, Congress passed legislation authorizing the FS to sell the Federal parcel to the City of Sedona, and to credit a portion

of the City's previously paid special use fees against the land's purchase price.

Although the legislation only discussed a land *sale* to the City of Sedona, realty staff believed the fee credit could be applied to the land exchange as well. Consequently, they continued to process the Woo Ranch Land Exchange under the expectation that a portion of the City's previously paid special use fees, in the approximate amount of \$385,000, would somehow be 'credited' against the FS land being exchanged.

During a scheduled NLAT review of the Woo Ranch Land Exchange, RO realty staff introduced the topic of the proposed credit, seeking the NLAT's advice on how to properly process this refund. When NLAT members reviewed the legislation, they determined that no credit was authorized for the land exchange, and that the intended \$385,000 refund lacked legal authority. As a result of the NLAT's oversight, FS realty staff halted their plans to apply a credit to the transaction, and initiated discussions with the City of Sedona. As of June 2001, FS realty staff and the City were considering a direct sale of the FS land rather than pursuing the land exchange.

#### Inadequate Appraisal Procedures

In Region 6, realty staff had approved the Times Mirror Land Exchange and were preparing to finalize the transaction when the NLAT reviewed this case. The NLAT identified significant issues relating to the adequacy of the valuations, and prevented realty staff from proceeding with the transaction until the appraisals had been updated to reflect current values and market practices.

The appraised values of the Federal and non-Federal lands in the Times Mirror Land Exchange were based on the estimated amounts of merchantable timber available for logging on each parcel. However, the methodology used by FS staff to estimate these timber volumes (referred to as cruising) was inappropriate because it differed from the measurement practices used by private industry. FS measurement standards assume logs cannot be exported to foreign markets, such as Japan, while private industry standards assume such exportation can and will occur.

When the NLAT reviewed this case, team members identified the fact that the appraised values were inappropriately based on FS timber measurement standards and did not properly reflect the export value of the timber. (See Finding No. 2) Under Federal Appraisal Standards, the valuation of Federal and non-Federal lands being exchanged must be

based on conditions existing in the actual marketplace (i.e. industry standards). The NLAT directed FS staff to re-cruise the Federal and non-Federal tracts to private industry standards, and to revalue the parcels based on these new timber estimates.

As a result of the NLAT's recommendations, the RO revalued the Federal and non-Federal lands, and eventually decided to pursue a direct purchase of the private parcel rather than proceed with a land exchange.

#### Insufficient Preliminary Analysis

In Region 6, the NLAT identified issues relating to the feasibility of the proposed Lincoln City Land Exchange that had not been noted by regional and forest realty staff.

The Lincoln City Land Exchange proposal involved the disposal of as much as 714 acres of FS land in exchange for a 60-acre private parcel located within a congressionally designated scenic area (Refer to OIG Report No. 08003-7-SF, September 2001). Forest realty staff had analyzed the feasibility of this proposal, as required by the NLAT, and had determined that it complied with the forest's land management objectives and applicable forest plans. RO realty staff then concurred with this analysis and presented it to the NLAT during a scheduled review in August 2000.

During the NLAT review, team members familiarized themselves with the case and determined that the proposed transaction might not, in fact, be a feasible proposal because it involved the potential disposal of Federal lands designated as endangered species habitat. As a result of the NLAT oversight and its recommendations, RO realty staff reevaluated the Lincoln City Land Exchange proposal and decided to pursue direct purchase of the private parcel, rather than proceed with a land exchange.

Based on our audit, we concluded that the NLAT was effectively accomplishing its mission, and provided reasonable assurance that transactions subjected to its review would comply with laws, regulations, policies and procedures, and would serve the public interest. At a minimum, we recommend that the WO continue to utilize the NLAT until all regional lands staff clearly demonstrate their ability to provide the necessary oversight and guidance to the landownership adjustment program. In addition, after regional competency is achieved, the WO should consider making the NLAT a permanent feature of its lands program. Ongoing independent national oversight, especially of the most significant and vulnerable land exchange transactions, would improve the

integrity of the program and restore the public's trust in Federal land exchange transactions.

#### New Direction in FS Manual and Handbook Needs to be Finalized

The effective implementation of the NLAT is an important step in the FS's efforts to improve the consistency and accountability of its landownership adjustment program. However, accountability over this program would be further enhanced if updates and revisions to existing landownership policies and procedures, drafted by FS staff over the last several years, were finalized in the FS Manual and Handbook.

Since its first audit of the Toiyabe-Humboldt National Forest in 1997, OIG conducted several audits of the FS landownership adjustment program, and made recommendations covering 74 internal control weaknesses needing immediate corrective action.

CONTROL TYPE	NO. OF RECOMMENDATIONS
Managing the exchange process	30
Dealing with facilitators	25
Appraisal process	14
Accountability of assets acquired	5
<b>TOTAL</b>	<b>74</b>

In an effort to correct the program's deficiencies, WO lands staff drafted numerous revisions to the FS Manual and Handbook that provided expanded direction and guidance specifically addressing the issues identified by OIG, incorporated land adjustment policy revisions and updates, and reflected current regulatory and authority provisions. However, as of December 2001, the proposed changes to the FS Manual and Handbook have not yet been finalized. Until these corrective measures become official FS policy, the future integrity of the FS land adjustment program, as a whole, cannot be assured.

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#### **RECOMMENDATION NO. 1**

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Continue to utilize the NLAT until all regional lands staff clearly demonstrate their ability to provide the necessary oversight and guidance to the landownership adjustment program. In addition, after such regional competency is achieved, consider establishing permanent national oversight of this program.

### **FS Response**

The FS generally concurred that national oversight should continue until regional lands and valuation staff have demonstrated their ability to provide consistent oversight locally. Once the regional competency is achieved, the FSWO will consider establishing a permanent national oversight of the program.

### **OIG Position**

OIG accepts FS' management decision.

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## **RECOMMENDATION NO. 2**

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Finalize revisions to the FS Manual and Handbook that provide expanded direction and guidance specifically addressing issues previously identified by OIG, that incorporate

land adjustment policy revisions and updates, and that reflect current regulatory and authority provisions.

### **FS Response**

The FS concurs with the recommendation. The revisions will be formalized consistent with provisions of Secretary of Agriculture Code of Federal Regulations 36 Part 216. The planned date for final publication is October 1, 2002.

### **OIG Position**

OIG accepts FS' management decision for this recommendation.

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**FINDING NO. 2**

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The FS used inconsistent methodologies to estimate timber volumes for three of eight land exchanges we reviewed. This occurred because current FS appraisal directives did

not provide sufficient guidance on the design and implementation of timber cruises. As a result, timber value estimates for the three land exchanges were inequitable and potentially inaccurate.

The FS determines the amount of timber on a tract of land through a process called timber cruising. Timber cruising estimates merchantable timber volumes, species mix, and defect of the trees using statistical sampling methods. These timber volumes, usually denoted as thousand board feet (MBF), are then used to calculate the fair market value of lands being purchased or exchanged by the FS. Appraised values are based on the assumption that consistent timber cruise standards have been applied to both sides of the land exchange, and that the cruise intensity (number of trees counted on each parcel) provides for similar sampling errors when estimating timber volumes on the Federal and non-Federal tracts.

The FS Appraisal Handbook 5409.12, effective August 3, 1992, states that cruise intensity should be the minimum necessary to produce an acceptable sampling error for the values involved. Timber is to be cruised to the utilization standards applicable to the market area. An update of this policy, still in draft form but distributed to appraisal staff as current direction, specifies that timber cruises are to be designed as if the timber were to be sold on the open market, using market practices to determine acceptable cruise standards and sampling error. Commercial timber is to be measured and graded based on whether it will be sold on the domestic or export market.

Eight of the 12 transactions we reviewed involved lands containing significant timber resources and appraised values based on timber cruise estimates. For three of these transactions, we identified problems with the consistency, accuracy, and reliability of the timber cruises, including:

- Differing cruise methodologies and sampling intensities used to estimate timber volumes, and cruise plans developed for the Federal and non-



Federal parcels that were not reviewed and approved by FS appraisers for consistency.

- Cruise volumes and appraised values based on FS merchantability specifications rather than market practices.
- Outdated timber volume estimates significantly reduced, in some cases by as much as 37 percent, based on visual examinations, without re-cruising affected tracts to ensure reductions were accurate.

These problems occurred because current FS appraisal directives did not provide sufficient direction on the design and implementation of timber cruises. The use of divergent cruise methodologies, inappropriate merchantability specifications, and outdated information resulted in timber valuations that were inconsistent and potentially inaccurate.

#### Inconsistent Cruise Methodologies Used to Estimate Timber Volumes on Federal and Non-Federal Lands

While the FS Appraisal Handbook states that cruise intensity should be the minimum necessary to produce an acceptable sampling error for the values involved, current direction does not address the need for consistent sampling errors when cruising timber on Federal and non-Federal parcels, or the need to develop a uniform cruise plan for each parcel, regardless of ownership. Equal treatment of the Federal and non-Federal parcels is essential since variations in cruising methodology, including sampling error, confidence limits, merchantability specifications, and the statistical calculation of timber volumes, can significantly affect the appraised value of the lands being exchanged.

We found inconsistent cruise methodologies were used to estimate timber volumes on Federal and non-Federal parcels. These inconsistencies included differing merchantability specifications, sampling errors, and computer volume estimators.

- The Stimson Land Exchange in Region 1 involved a 214-acre non-Federal parcel appraised at \$1,157,000, and two Federal parcels of 98 and 254 acres, appraised at a total of \$930,000. The cruise plans, used to estimate the amounts of merchantable timber and upon which the appraised values were based, had been separately developed and never reviewed by FS staff for consistency. In addition, the non-Federal parcel, cruised in 1994 by contract cruisers hired by the proponent, used a sampling error of +/- 9.85 percent. The two Federal parcels, cruised by FS and proponent cruisers in 1995, used a less accurate sampling error of +/- 14.4 percent. The use of consistent

sampling errors is important because they indicate the accuracy of timber volume estimates and appraised values based on those estimates. The greater the sampling error, the greater the probability for error.

- The Sunriver Environmental LLC Land Exchange in Region 6, completed in January 2000, consisted of a 374-acre Federal parcel appraised at \$570,000, and two non-Federal parcels totaling 264 acres, appraised at \$545,000. The timber volumes on the Federal and non-Federal lands were estimated at different times, and by different contract cruisers. The merchantable timber on the Federal parcel was calculated by a cruiser hired by the appraiser, using a sampling error of +/- 9 percent, at a 95 percent confidence level. The non-Federal parcel was cruised by a contract cruiser hired by the landowner. These timber volumes were based on different merchantability specifications, and were not statistically supported by sampling errors or confidence limits. FS staff did not review or approve the cruise plans used by either of the contract cruisers.
- In the Times Mirror Land Exchange, also in Region 6, FS cruisers estimated merchantable volumes on the non-Federal parcel in 1989. This cruise was not statistically supported by sampling errors or confidence limits. The merchantable volumes on the Federal parcels were calculated six years later, in 1995, by a contract cruiser, using a different cruise plan and merchantability specifications. The inconsistent treatment of the Federal and non-Federal parcels was further exacerbated when the contract cruiser estimated timber volumes on additional Federal parcels in 1997, using a different computer program to calculate volumes than he'd employed in the past. None of the cruise plans were reviewed or approved by FS staff.

Appraisal staff in Region 6 recently recognized the value implications of using inconsistent cruising techniques on Federal and non-Federal parcels involved in land exchanges. In November 1998, the region instituted a policy requiring all appraisals containing timber values to be based on a FS approved cruise plan, with consistent methodology and sampling errors applied to all parcels involved, regardless of ownership. However, Regional appraisal staff have not formalized this policy as written guidance.

#### Timber Volumes Based on FS Cruise Standards Rather Than Market Practices

Although the FS Appraisal Handbook directed appraisers to use 'market practices' when estimating merchantable timber volumes, it did not

provide sufficient guidance on what this term meant, or how to use these practices to establish acceptable cruise standards and sampling errors. Foregoing the use of market practices can affect the accuracy of the estimated timber volumes, and thus, the final appraised values. Of the eight transactions we reviewed involving timber estimates, five utilized FS log grading standards and sampling errors to establish merchantable volumes, rather than the market based grading and sampling practices used by the private timber industry.

FS cruising standards do not mirror market practices because, in part, they assume all timber, including high value old growth species, will be domestically processed, rather than exported. This presumption impacts how cruisers grade the timber and how they estimate total merchantable volumes. In cases where an export market exists for timber species on lands being exchanged, the use of FS cruising standards could significantly understate the estimated timber volumes and the resultant appraised values.

- In Region 1, we found all four of the exchange transactions reviewed used FS cruising standards to estimate the timber volumes on either the Federal or non-Federal parcels.
- In R-6, we found one of the four exchange transactions reviewed used FS cruising standards rather than local market practices to determine the volume and export value of high-grade douglas fir and cedar species.

We also determined that, even though the use of market practices was required by appraisal direction, there was no consensus as to how these standards were to be identified and applied. RO realty staff in Region 1 stated that log grading standards and sampling errors should be negotiated by the FS and the proponent for each land exchange. However, forest realty staff in that same region told us they did not know how market practices were to be determined. They thought the appraiser, FS realty staff, cruisers and other representatives from both sides of the land exchange should jointly develop cruising standards. We believe contacting local timber mills and other log buyers to determine their sampling error and log grading standards would be the best method for establishing cruise standards that reflect the local market practices for measuring and grading timber.

#### Outdated Estimates Were Significantly Reduced Without Re-Cruising

The FS Appraisal Handbook also contained no guidance on when timber volumes should be re-cruised in the event that original volume estimates

are no longer valid due to insect infestation, blow-down, fire or other damage. We found outdated timber volume estimates had been significantly reduced, in some cases by as much as 37 percent, based on visual examinations, without re-cruising affected tracts to ensure reductions were accurate. As a result, the appraised values of some timbered parcels were based on questionable volume estimates.

- The Stimson Land Exchange in Region 1 involved two Federal parcels that were originally cruised by FS and proponent cruisers in 1995. In April 2000, the cruisers determined that tree mortality had occurred and substantially reduced their volume estimate on one Federal parcel from 3,448 MBF to 2,708 MBF, a reduction of 21 percent. The cruisers performed only a four-hour field review as the basis for this significant volume reduction. Even though the volume estimates of the douglas fir species (representing 46 percent of the total volume) were reduced by 37 percent, the timber on this parcel was not re-cruised to ensure the reductions were accurate.
- Volume estimates for the Times Mirror Land Exchange in Region 6 were also significantly reduced based on proponent and FS cruisers' visual inspections. The non-Federal parcel, consisting of 66 acres of primarily old-growth douglas fir, was originally cruised by FS personnel in 1989. Using this outdated cruise data, proponent and FS cruisers made a visual inspection of the parcels in 1995 and reduced total volumes of this high value species by 24.7 percent. These substantial volume reductions were based on allowances for a riparian buffer zone, hidden defect and breakage, and a 1990 blow-down of a portion of the timber. The original contract appraiser used these revised volume estimates to establish the value of the non-Federal parcel in 1995, in 1997, and again on January 13, 1999. During this ten-year period, the parcel was never re-cruised to determine the current merchantable volume of this high value timber<sup>1</sup>.

The development and application of consistent cruise methodologies is imperative if Federal and non-Federal timber tracts involved in land exchanges are to be valued in an equitable manner. To ensure that this occurs, the FS needs to revise its current timber appraisal procedures. The new direction should require a cruise plan that provides consistent cruise methodologies and comparable sampling errors when estimating timber volumes on Federal and non-Federal parcels. Further, appraisal direction should specify conditions necessitating a re-cruise of timber tracts involved in land exchanges when previously determined timber

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<sup>1</sup> In response to NLAT recommendations noted during a May 1999 review Region 6 realty staff arranged for the Federal and non-Federal tracts to be re-cruised and re-valued.

volumes are slated for revision. Finally, appraisal direction should clarify the meaning of “market practices” as the standard for the timber cruise designs.

We issued a Management Alert to the WO, dated September 27, 2001, which contained the recommendations listed below. WO realty and appraisal staff agreed with each recommendation and said they would incorporate appropriate direction in the Appraisal Handbook, FSH 5409.12. This handbook is currently being revised and has an estimated completion date of March 1, 2002.

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**RECOMMENDATION NO. 3**

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Revise the Appraisal Handbook, FSH 5409.12, to require the development of a cruise plan for each land exchange involving timber volume estimates. This plan should

specify, as a minimum, the cruising procedures to be used on both Federal and non-Federal lands, including the sampling error, confidence limits, merchantability specifications and measurements, maximum deviation of the check cruise, and the statistical program to be used to compute estimated net volumes.

**FS Response**

The FS concurs with the recommendation. The handbook will be revised to more adequately specify the timing and content of the cruise plan for exchanges, current market practices, private market practices for cruise standards and sampling errors, cruise procedures and the requirement for application to both Federal and non-Federal properties. The planned date for final publication is October 1, 2002.

**OIG Position**

OIG accepts FS’ management decision for this recommendation.

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**RECOMMENDATION NO. 4**

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Develop written direction in the FS Appraisal Handbook specifying the conditions necessitating a re-cruise of timber tracts involved in land exchanges when previously

determined timber volumes are slated for revision.

### **FS Response**

The FS concurs with the recommendation. The handbook will be revised to include criteria triggering update of the cruise when it's been less than two years since the current cruise and a requirement for re-cruise after two years regardless of whether any of the trigger criteria have occurred. The planned date for final publication is October 1, 2002.

### **OIG Position**

OIG accepts FS' management decision for this recommendation.

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## **RECOMMENDATION NO. 5**

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Develop written direction in the FS Appraisal Handbook clearly specifying how "market practices" are to be determined and used to establish acceptable cruise standards and

sampling errors for Federal and non-Federal timberlands to be exchanged.

### **FS Response**

The FS concurs with the recommendation. The handbook will include the requirement for the cruise document to analyze current market practices for the area and timber type. The planned date for final publication is October 1, 2002.

### **OIG Position**

OIG accepts FS' management decision for this recommendation

## EXHIBIT A – LAND EXCHANGES REVIEWED

REGION	EXCHANGE NAME	ACRES		VALUE <sup>1</sup>	
		Federal	Non-Fed	Federal	Non-Fed
1	Butter N' Eggs	2,452.65	2,261.02	\$7,800,000	\$7,800,000
1	Stimson	351.85	214.44	930,000	1,157,000
1	Coeur d'Alene River/Chain of Lakes	1,234.22	1,746.84	3,611,000	3,899,000
1	Marble Creek	1,350.00	1,920.00	5,450,000	5,450,000
3	L-Bar	11,319.27	12,252.04	7,200,000	7,300,000
3	Tusayan	272.00	2,117.91	5,400,000	4,982,000
3	Woo Ranch	251.20	100.00	4,522,000	4,500,000
3	Star Valley II	191.12	1,090.53	3,822,400	3,787,638
6	Triangle	3,900.26	5,695.98	2,911,000	2,908,000
6	Guistina Resources	172.54	237.49	2,323,500	2,357,000
6	Sunriver Environmental LLC	374.20	264.42	570,000	545,000
6	Times Mirror	80.00	66.00	788,000	706,000
	<b>Total</b>	21,949.31	27,966.67	\$45,327,900.00	\$45,391,638.00

<sup>1</sup> Differences between Federal and non-Federal values are balanced with cash equalization amounts either paid or received by the FS.

## EXHIBIT B – AUDITEE RESPONSE TO DRAFT REPORT



United States  
Department of  
Agriculture

Forest  
Service

Washington Office

14<sup>th</sup> & Independence SW  
P.O. Box 96090  
Washington, DC 20090-6090

File Code: 1430/5430  
Route To: (5430)

Date: MAR 20 2001/2

Subject: Response to Draft Audit Report OIG-08601-27-SF National Landownership  
Adjustment Team

To: Joyce N. Fleischman, Acting Inspector General  
Office of the Inspector General

Enclosed is our response to the OIG Draft Audit Report, National Landownership Adjustment  
Team, Audit Report No. 08601-27-SF.

We have reviewed the aforementioned draft report and generally agree with the  
recommendations and findings contained in the report.

If you have questions or concerns, please contact our External Audit Liaison, Linda Washington,  
at (202) 205-1560.

  
MARY S. MATIELLA  
Chief Financial Officer  
Deputy Chief, Office of Finance

Enclosure

cc: Cynthia R Swanson, Mike Williams



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**USDA  
FOREST SERVICE**

**OFFICE OF INSPECTOR GENERAL  
WESTERN REGION  
DRAFT AUDIT REPORT NO. 08601-27-SF  
FOREST SERVICE  
NATIONAL LANDOWNERSHIP ADJUSTMENT PROGRAM  
WASHINGTON, D.C.**

**GENERAL COMMENTS CONCERNING THE REPORT**

**OIG RECOMMENDATION NO. 1:** Continue to utilize the NLAT until all regional lands staff clearly demonstrate their ability to provide the necessary oversight and guidance to the landownership adjustment program. In addition, after such regional competency is achieved, consider establishing permanent national oversight of this program.

**FS RESPONSE:** We generally concur that national oversight should continue. National oversight will be continued on land exchange proposals until regional lands and valuation staff have demonstrated their ability to provide consistent oversight locally. This will be documented in a letter to the Region. Once this regional level of competency has been achieved, the Washington Lands Staff will continue to monitor and conduct oversight of this program.

**OIG RECOMMENDATION NO. 2:** Finalize revisions to the FS Manual and Handbook that provide expanded direction and guidance specifically addressing issues previously identified by OIG, that incorporates land adjustment policy revisions and updates, and that reflect current regulatory and authority provisions.

**FS RESPONSE:** We concur with this recommendation. Forest Service Manuals 5400, 5410 and 5430 and companion Handbooks 5409.12 and chapter 30 of 5409.13 dealing with valuation and land exchange direction have been revised to reflect the expanded direction and guidance specifically addressing the issues identified by previous OIG Audits. These revisions will be formalized consistent with provisions of Secretary of Agriculture Code of Federal Regulations 36 Part 216. The planned date for final publication is October 1, 2002.

**OIG RECOMMENDATION NO. 3:** Revise the Appraisal Handbook, FSH 5409.12, to require the development of a cruise plan for each land exchange involving timber volume estimates. This plan should specify, as a minimum, the cruising procedures to be used on both Federal and non-Federal lands, including the sampling error, confidence limits, merchantability specifications and measurements, maximum deviation of the check cruise, and the statistical program to be used to compute estimated net volumes.

**FS RESPONSE:** We concur with the recommendation. Our valuation and timber management staff have worked cooperatively at the Regional and Washington levels to revise FSH 5409.12, Chapter 20, Section 21, to more adequately specify timing and content of the cruise plan for exchanges, including its relationship to the Agreement to Initiate, current market practices, private market practices for cruise standards and sampling errors, cruise procedures, and the requirement for application to both the Federal and non-Federal properties. The planned date for final publication is October 1, 2002.

**OIG RECOMMENDATION NO. 4:** Develop written direction in the FS Appraisal Handbook specifying the conditions necessitating a re-cruise of timber tracts involved in land exchanges when previously determined timber volumes are slated for revision.

**FS RESPONSE:** We concur with the recommendation. FSH 5409.12, Chapter 20, Section 21, includes criteria triggering update of the cruise when it's been less than two years since the current cruise and a requirement for re-cruise after two years regardless of whether any of the trigger criteria have occurred. The planned date for final publication is October 1, 2002.

**OIG RECOMMENDATION NO. 5:** Develop written direction in the FS Appraisal Handbook clearly specifying how "market practices" are to be determined and used to establish acceptable cruise standards and sampling errors for Federal and non-Federal timberlands to be exchanged.

**FS RESPONSE:** We concur with the recommendation. FSH 5409.12, Chapter 20, Section 21, includes the requirement for the cruise document to analyze current market practices for the area and timber type. The planned date for final publication is October 1, 2002.

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## ABBREVIATIONS

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BLM	
Bureau of Land Management .....	1
FS	
Forest Service .....	i
GAO	
General Accounting Office .....	1
NLAT	
National Landownership Adjustment Team .....	i
OIG	
Office of Inspector General .....	i
R-1	
Northern Region .....	i
R-3	
Southwestern Region .....	i
R-6	
Pacific Northwest Region .....	i
WO	
Washington Office .....	i

