

12. NOISE

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard by the human ear and called “sound”. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz). The relative loudness or intensity of sound energy is measured in decibels (dB). A decibel is a logarithmic unit of sound energy that represents the smallest variance in sound that the human ear can detect.

Environmental noise is usually measured in A-weighted decibels (dBA) and typically fluctuates over time. An ‘A-weighted’ decibel (dBA) is a decibel corrected for the variation in frequency response of the typical human ear at commonly encountered noise levels. Noise measurement descriptors also include the energy-equivalent noise level (Leq), the day-night average noise level (Ldn), and the Community Noise Equivalent Level (CNEL).

In the urban setting, street and traffic noise can be considered background noise. But unless a rural home is on a highway, one might notice a car coming on a rural road for miles. Noises in the rural setting can seem amplified if there are no barriers to the source. But noise levels are reduced by increasing distance, air density, wind, and obstructions (trees, buildings, and natural landscape features).

12.1. Regional and Local Setting

Given the following factors, Mendocino County is used as the regional setting and JDSF and the nearby surrounding area are used as the local setting for noise:

- The forest management and recreation noise associated with JDSF management is typical of rural forested areas in the county;
- The limited distance of sound travel;
- The residential and recreationalist sound receptors involved.

Mendocino is a rural county. Ukiah is the county seat and the biggest city, but is also considered rural, characterized by low-density housing and ranchettes surrounding the city. Forest management (including timber harvesting, road maintenance, and road building) and recreation (including camping, hiking, horseback riding, mountain biking, and target shooting) activities and their associated noise are common on forestlands in Mendocino County.

The Jackson Demonstration State Forest lies in the western-most part of Mendocino, County, about 8 miles east of the unincorporated western border of Willits. It is bisected by State Highway 20 and shares approximately 30 miles of roads with unincorporated properties east of Mendocino and Fort Bragg. Low-density rural housing and ranchettes

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are dotted along JDSF's borders, where unfenced residences meld into the state forest property without distinction.

12.2. Existing Noise Levels

Ambient (background) sources of natural noise range from short-term soft sounds, as in the sound of the wind in the trees (30-50db), to short-term loud cracks and rumbles, as in the sound of falling rocks (60-80db). Ambient noise can also be loud and constant, as in the deafening sound of a large waterfall (100db).

Community noise or “ambient” noise includes background noise from traffic, machines, and people. Ambient *forest* noise comes from both natural and man-caused sources. Some noise is short-term; some is constant. Following is a description of the various sources of man-made ambient noise on the Jackson Demonstration State Forest.

Man-made noise-generating activities within the assessment area on the Jackson Demonstration State Forest include the following, which are addressed in some detail below, and more thoroughly described in the County General Plan:¹

- Vehicle traffic (adjacent highways, access roads, and railroads)
- Recreation (people, off-highway vehicles, target shooters and hunters)
- Activities from adjacent residences and businesses
- Construction (roads and facilities)
- Harvesting activities (machines and chain saws)
- Air traffic (planes and helicopters)

Vehicle Traffic Noise: JDSF traffic noise is a function of the receptor's distance from roads, especially State Route 20. State Route 20 traverses the Coast Range of mountains from the inland valley town of Willits to the coast, just south of Fort Bragg. State Route 20 handles most of the east to west commercial, recreational, and commute traffic for the region. The Mendocino County General Plan (p. VI-11) describes State Route 20 as “noisy at Fort Bragg,” but does not comment directly on noise levels within JDSF. The California Western Railroad Skunk Train is included in the assessment area. The engine and horn noise from the train's 2-4 daily trips is loud near the train, but it is somewhat muffled by the forest topography. With respect to the Skunk Train, the County General Plan notes (p. VI-19) that since most of the route “traverse[s] unsettled rural areas, the only areas affected by noise are within the cities. No reports have been received that indicate a severe problem or one which warrants action.”

Recreation Noise: The State Forest attracts a variety of recreation uses that generate loud noise, including target shooting, hunting-related gunfire, and Off Highway Vehicles

¹ The Mendocino County General Plan is available on the Internet at <http://www.co.mendocino.ca.us/planning/GenPlan/GPCContents.htm>

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(OHVs). OHVs include motorcycles and all-terrain vehicles (ATVs). OHV use is prevalent, although not a legal use of the Forest, particularly along the rural residential interface. Gunfire noise can be isolated to shooting areas, but may carry long distances. Popular shooting areas in the forest include rock quarries, and there are several quarries close enough to the surrounding rural residential interface for homeowners to hear and be bothered by the sound. Recreation noise is generally temporary and seasonal, and is most noticeable where recreation occurs along the rural residential interface.

Noise-Generating Activities from Residential Development and Businesses:

County noise rules are much less restrictive than city rules, even though county residents may be more sensitive to noise. Rural inhabitants can have noisy animals like roosters, livestock, and outdoor dogs, and the neighbors tolerate the loud sounds of generators, water pumps, chainsaws, weed whackers, guns, construction tools, ATVs, and large-engine mechanical equipment such as tractors.

The Mendocino County General Plan has data on sound emissions from businesses with noisy operations, including ranching machinery, industrial processors, commercial fishing plants, boat construction, and large construction projects, such as the Noyo Bridge replacement.

From a wildlife standpoint, the state forest rural residential interface is a noisy and dangerous area, potentially separating the wildlife from water, food, and migration routes. But the ornamental landscaping also can be a unique and attractive source of food.

Noise from Construction and Timber Harvesting: Construction noise is similar to that of logging operations; essentially it is the sound of machinery at work. Machinery may include chainsaws, back-up beepers, yarding tooters, diesel motors, cable yarders, helicopters, and other power tools and engines. Noise from road building activities may also require explosives to develop new, expand, or re-open rock quarries and passageways.

Air Traffic Noise: Helicopters used for logging, cone collection, reconnaissance activities and other administrative and emergency uses is expected to occur. Using helicopters for logging operations on the State Forest is one way to avoid the environmental impacts of road building and ground disturbance related to timber harvest. However this method can be expensive and noisy. Helicopter sounds can carry many miles, unobstructed, because they often fly above the natural sound barriers of hilly terrain. Use of helicopters for this purpose will be rare.

The following section analyzes the potentially significant sources of noise from activities on the Jackson Demonstration State Forest.

12.3. Noise Impact Analysis

Noise is a concern if it disturbs any living thing. Sudden loud noises can cause birds to leave their nests, and repetitive unnatural noise can cause animals to abandon the area altogether. Loud and repetitive noise can also disturb humans from the peace and tranquility of living in the woods.

It is assumed ambient noise on JDSF is generally natural and not a problem to people or wildlife. Man-made noise is not always a problem, but can disturb people and wildlife under certain conditions. The chief noise-making activities on JDSF result from recreation and timber management.

12.3.1 Recreation Noise Impacts

Selected roads on the State Forest are gated, but the forest is not fenced, so most forms of recreation are not strictly regulated or controlled. ***Vehicle traffic and target shooting are generally the noisiest recreational activities.*** Vehicles on the State Forest are legally limited to roads with open gates. But despite patrol and posted rules, OHV use behind closed gates is difficult to prevent. The loud whiny motor noise associated with motorcycles and other OHVs can be very disturbing both to State Forest neighbors and to resident wildlife. This is a generally a problem near the rural residential interface, far from the heart of the State Forest.

Shooting and hunting with guns are permitted anywhere on JDSF except on public roads, near buildings, trails, campgrounds, where posted closed, or otherwise prohibited by law. The sound of guns can carry long distances. Many areas within JDSF that are utilized by the public for target shooting are well within earshot of the Forest's rural residential neighbors. But even far into the heart of JDSF, wildlife and recreationalists (hikers, bikers, campers) can be subjected to the sounds of gunfire, which can detract from the recreational experience.

12.3.2 Timber Management Noise Impacts

Timber management is the other major source of man-made noise on JDSF.

Noise Levels Associated with Traditional Tractor Logging: Traditional tractor logging procedures in JDSF and other timber lands in the region involve felling trees, and then bringing logs to a landing with a tractor or cable wire line. Depending on the size of logs, equipment may vary, although typically equipment similar to the Caterpillar D6 or D7 bulldozer or a log skidder is used. Following yarding logs to the landing, logs are sorted by either a heel boom or loader equipped with log forks and loaded on to a log truck bound for the mill.

Table VII.12.1 represents the results of noise measurements conducted during active timber harvest operations under traditional tractor logging conditions.

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TABLE VII.12.1 Active Timber Harvest Site Equipment and Activity Noise Level Measurements.		
EQUIPMENT/ ACTIVITY	SOURCE	EQUIVALENT CONTINUOUS NOISE LEVEL (Leq)-dB¹
Heel Boom Loader	Caterpillar 325	60 ²
Bull Dozer	Caterpillar D8N	63
Bull Dozer	Caterpillar D7G	63 ³
Chainsaw	Stihl 046	65
Clearing Deck Debris & Stacking Logs	Caterpillar 325	60
Skidding & Stacking Logs	Caterpillar 325, Caterpillar S8N w/ backup alarm	65
Shaking Heel Boom Grapppler	Caterpillar 325	70
Skidding & Stacking Logs	Caterpillar 325, Caterpillar D7G	64
Skidding & Stacking Logs	Caterpillar 325, Caterpillar D8N, Caterpillar D7G	68
Cutting Trees	Stihl 046	68
Tree Falling	Tree	58 ⁴
1. Sight line noise measurements distance = 150 feet 2. Idling 56 dB 3. Idling 58 dB 4. Sight line noise measurement distance = 250 feet		

Fifteen minute equivalent noise levels (Leq), measured at an active tractor logging operation included the following attributes:

- Two fallers in the woods using Stihl 046 chainsaws, with an additional Stihl 046 saw used occasionally on the landing to trim branches or log ends;
- Two Caterpillar D7 high-track skidder units;
- One Caterpillar 966 loader equipped with log forks; and
- Semi-trucks to haul logs from the landing to the mill. Up to three semi trucks were on site, with the trucks not being loaded usually left idling on the near-by haul road, until they were brought to the landing.

The Leq measurements reported herein include tree falling, limbing, skidding, stacking, sorting, and loading logs onto semi trucks. Noise measurements for these operations resulted in equivalent noise levels between 68 dBA and 83 dBA Leq at a distance of approximately 50 feet.

Traditional tractor logging generates sounds from many sources throughout the harvest area, and usually for the duration of the harvest period. However, the sounds from heavy equipment operating on the ground in the Forest are often dampened or attenuated by the surrounding trees and soft ground surface. This type of attenuation

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would not occur with helicopter logging, since air does not attenuate sounds the same way the ground surface does.

Generally, on even terrain, noise level is reduced by one-half with a doubling of distance between the noise source and the receptor.

Cable Yarding Noise: Cable yarding by itself is a fairly quiet operation. However communication from the logging area up to the landing is necessary, and loggers do this with pre-designated signals from a device on the belt of the choker setter/hook tender that emits sounds on the yarder called a “talkie tooter”. This enables the person in the woods to give instructions to the yarder operator to slack on the cable, tighten the slack, haul the logs, stop for emergencies, etc. The talkie tooter horn generally emits repeated short blasts in code throughout the day when hauling logs. The Air Chime Company in Canada sells two models of air horn, which are typical of talkie tooters, and which emit a documented blast of 135-140db at the source. These sounds can carry across small ravines and increased distances with wind, generally 1-3 kilometers (0.6 to 1.9 miles).

Helicopter Noise: Noise impacts would depend on the type of helicopter used in the operation. According to FAA Advisory Circular-AC36-1G, Bell Series and Hughes models noise levels in decibels (dBA) are as follows:

Table VII.12.2. NOISE LEVELS FOR HELICOPTERS (Decibels = dBA).			
Aircraft	Flyover*	Takeoff	Landing
Bell 206 L- III	86.9	87.6	91.1
Bell 206 L-IV	83.3	84.1	87.3
Bell 206 B-III	85.2	88.4	90.7
Hughes 500 D	88.7	NA	NA
*Fly over was measured at 150 meters (487.5 feet).			

Some comparable sound levels of common sound sources are as follows:

- Auto (60 mph) at 100 feet–65 dBA
- Vacuum cleaner at 10 feet–70 dBA
- Electric lawn mower at 3 feet–85 dBA
- Food blender at 3 feet–90 dBA

12.4. Sensitive Receptors (Noise-sensitive areas)

Residential: Certain receptors are considered more sensitive to noise than others. For example, people in residential dwellings, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, parks, and other outdoor recreation areas generally are more sensitive to noise than people in commercial and industrial areas. People in rural residential areas are generally considered to be more sensitive to noise than in suburban or urban residential areas.

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Adjacent to JDSF, over 30 miles of rural residential area abuts the forest, primarily on western and southern boundaries and in-holdings are potential sensitive receptors. The General Plan of Mendocino states in its CEQA compliance that residential development will be planned so as not to subject residents to excessive noise. Every new landowner adjacent to the Jackson Demonstration State Forest has signed a disclosure that they understand State Forest land is subject to timber harvest now or in the future.

Recreation Areas adjacent to JDSF: Noise generated within JDSF or close to the borders of JDSF, has potential to affect sensitive receptors not only within JDSF, but also to adjacent parks and private land uses. State Parks shares borders with JDSF in many areas. The Mendocino Woodlands State Park and the Jughandle State Reserve abut the west side of JDSF, and Russian Gulch State Park is within the southern portion of JDSF. The new State Park on the lower Big River also shares a border with JDSF. These areas are potential sensitive receptors to noise produced on JDSF.

Recreation Areas within JDSF: There are two major camping areas with many sites each, 30 miles of hiking/recreation trails, as well as the many scenic vistas on the highway and roads, which may be considered sensitive receptors to noise created from outside JDSF as well as within.

Habitat: Wildlife in habitat areas can be sensitive receptors, particularly during the reproduction season.

Additional sensitive receptors associated with, but remote from JDSF, include any residences that would be subjected to truck-generated noise on potential log haul routes between JDSF and area mills, to helicopter noise along flight paths to and from potential logging sites within JDSF, and to recreational noise from OHVs and target shooting.

12.5. Noise Standards

The Mendocino County General Plan has identified exterior noise standards, adopted from U.S. Environmental Protection Agency suggested standards, applicable to specific categories of land use. For one and two family residential dwellings in rural suburban communities, the maximum exterior noise standard is 40 dBA Ldn between the hours of 10 P.M. and 7 A.M., 45 dBA Ldn between the hours of 7 P.M. and 10 P.M., and 50 dBA Ldn between the hours of 7 A.M. and 7 P.M.

The Mendocino County General Plan lacks specific noise standards for every zoning type. The Division of Environmental Health in the County Health Department has established preferred levels or goals for some of the land uses, and the Noise Element of the General Plan defines ranges of acceptability that are used to determine land use compatibility with various noise exposure levels. Mendocino noise policy generally targets protection of the environment from noise, but finds lumbering and agriculture significantly important to warrant the production of necessary noise. This is also

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reflected in General Plan land use and zoning designations which try to avoid placing an excess of noise sensitive land uses adjacent to agricultural and timber production areas (Mendocino County, 1991).

12.6. Regulatory Framework

Evaluation of potential noise impacts involves consideration of federal, state and local regulations, standards and policies. Actions resulting from the Forest Management Plan may be subject to one or more of the following standards relating to protection of biological resources:

- Noise Control Act of 1972 (42 USC § 4901 et seq.). Authorizes federal regulation of noise emission standards. The federal government regulates noise emissions of aircraft, railroads, and interstate carrier.
- California Noise Control Act of 1973 (Health and Safety Code § 46000 et seq.). The California Noise Control Act requires a noise control element within local general plans.
- The California Code of Regulations, Chapter 9. State Forests-Use and Sales. Subchapter 1. Recreational Use. Article 2. General Restrictions. Section 1412. Noise. The California Code of Regulations states that,

No person shall create noise that disturbs others in sleeping quarters or in campgrounds within a state forest between the hours of 11 p.m. and 6 a.m. daily. No person shall, at any time, use electronic equipment (other than that used in forest operations) including electrical speakers, radios, phonographs, or televisions that produce a sound that can be heard at more than 100 feet from the source.

- Designated areas of JDSF are closed to the use of firearms, including hunting (14 CCR § 1435):
 - Approximately 3,000 acres surrounding the Mendocino Woodlands located south and east of the Little Lake Road, and south of Road 740.
 - Approximately 1,500 acres around Parlin Fork Conservation Camp area.
 - Approximately 1,020 acres around the Chamberlain Creek Conservation Camp area.
- The Mendocino County General Plan includes a Noise Element that establishes goals recommending appropriate land use as it relates to the noise environment. The County has not formally adopted a specific noise policy. The Goals and Policies of the Noise Element states (p. VI-65), "Lumbering and agriculture are basic to the economy of Mendocino County and necessary noise associated with

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them must be tolerated; however residential buyers should be informed of the noise potential of sites affected by these industries.”

- The Z’Berg-Nejedly Forest Practice Act (Public Resources Code § 4511 et seq.) and California Forest Practice Rules (14 CCR § 895 et seq.) (FPRs) apply to timber operations within JDSF. CDF provides compliance review and enforcement of THPs under the FPRs for commercial timber harvesting on all non-federal timberlands. Within JDSF, CDF personnel who are not employed by JDSF review THPs and perform inspections for compliance with the Forest Practice Act and rules adopted by the State Board of Forestry and Fire Protection, as well as other state and federal laws that protect watersheds and wildlife.
- The Mendocino County Surface Mining and Reclamation Ordinance (Mendocino County Code Chapter 22.16) incorporates by reference the provisions of the California Surface Mining and Reclamation Act of 1975 (SMARA) (PRC § 2710 et seq.), Public Resources Code § 2207, and the California Code of Regulations implementing the Act (14 CCR § 3500 et seq., 14 CCR §§ 3675 and 3676, and 14 CCR Article 9, Chapter 8, § 3700 et seq.) and 11 CCR Article 53, Chapter 2, Division 1, §§ 115.1 - 115.5 and associated state regulations. The County of Mendocino Planning Office administers this regulatory area. SMARA governs excavations equal to or over 5,000 cubic yards, and quarry operations near watercourses. The Mendocino County Surface Mining and Reclamation Ordinance specifies noise restrictions for certain mining activities.

In addition, the noise element of quarry operations is separately addressed under the California Environmental Quality Act (CEQA), which addresses:

- Exposure to noise levels exceeding established standards
- Excessive ground-borne vibration
- Substantially increases ambient noise
- Excessive noise near public-use airports or private airstrips.

12.7. Proposed JDSF Management Measures Pertaining to Noise

Noise control measures and issues are identified throughout the DFMP. These measures are summarized below:

- During timber management activities conducted adjacent to residential areas, consider and mitigate the project’s effects on the casual and informal recreational uses of the State Forest by the Forest’s neighbors (DFMP, Page 146).²

² Page references to the DFMP refer to the electronic version (PDF) posted at the Board’s website: http://www.bof.fire.ca.gov/pdfs/jdsf_mgtplan_master%203b.pdf.

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- A Special Concern Area buffer zone totaling 1,153 acres is defined along the boundary of JDSF adjacent to non-industrial timberland owners where impacts on neighbors will be minimized. Only a limited range of silviculture is allowed in these areas (DFMP, Page 149).
- Consideration of noise and disturbance impacts on nest sites and neighbors will affect the decision to prescribe helicopter use in logging operations (DFMP, Page 72).
- Timber harvesting within 300 feet of campgrounds and day-use areas will be planned and conducted with the designated site use in mind (DFMP, Page 77).
- Implementation of timber management options to restrict the timing of timber operations to avoid conflicts with high visitor-use weekends, and restricting operating hours to minimize noise pollution (DFMP, Page 77).
- Active timber operations (to be discussed at the time of sales preparation) within the vicinity of occupied campgrounds and picnic areas will be limited to weekdays and non-holidays. Noise abatement mitigation will be included in any timber sale within 100 feet of an open campground for timber operations occurring between July 1 and Labor Day. Camp hosts will be kept informed of activities associated with timber operations affecting campgrounds under their jurisdiction (DFMP, Page 78).
- In protecting visitors and neighbors from shooting and related noise, JDSF has declined to establish formal public shooting areas (DFMP, Page 29). However the opportunity exists for reserving areas for special shooting events with gun clubs. Such events will only be allowed in areas remote from public roads, residential, or recreational use areas.
- The DFMP identifies the law enforcement jurisdiction of the Mendocino Ranger Unit Chief. The Unit chief is responsible for upholding state laws, including those specific to noise, in order to protect JDSF from damage and to preserve the peace within JDSF (DFMP, Page 83).

12.8. Thresholds of Significance

As discussed above in the Regulatory Framework section, and based on policy and guidance provided by CEQA (PRC Section 21001 and the CEQA Guidelines), an impact of the proposed project would be considered significant if it results in one or more of the following conditions is applicable:

- exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

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- exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels;
- a substantial permanent increase in ambient noise levels in the project vicinity (above levels existing without the project);
- a substantial temporary increase in ambient noise levels in the project vicinity (above levels existing without the project); and
- for a project located within two miles of an airport (or within an airport land-use planning area) or a private airstrip, the project would expose people residing or working in the project area to excessive noise levels.

12.9. Noise Impact and Mitigation

Noise impacts apply only if the noise is heard or felt. The steep forested character of the land in and around JDSF creates an environment in which most noise is dampened by topographical features.

Logging operations at JDSF present a source of significant seasonal noise. Most humans would not hear such noise generated in a remote area of JDSF, but certain wildlife species could be disturbed or displaced, depending on the length, duration, and frequency of the noise. JDSF conducts site-specific and area-wide wildlife survey and monitoring throughout the year to target sensitive species. Such monitoring must be done well in advance of a logging operation.

Noise can have a negative effect on humans if operations are conducted near campgrounds and trails. Such noise may be considered potentially significant short-term and mitigable adverse effects. Sensitive receptors considered in the analysis of implementation of the DFMP include all recreation areas within the Forest and rural residences bordering the western edge of JDSF.

Numerous studies have been conducted to evaluate the impacts of noise on animals. Noise impacts fall into several categories:

1. Nesting disturbance;
2. Interference with predator detection;
3. Interference with food searching;
4. Generalized stress that can sap energy reserves; or
5. Flight or fight response (nesting hawks will chase helicopters if they come too close, with some mortality due to being struck by rotors reported).

Impact 1: Expose persons to, or generate noise levels in excess of, standards established in the local general plan or noise ordinance or applicable standards of other agencies. (Less than Significant)

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The implementation of the May 2002 DFMP is not expected to result in the production of noise in excess of established standards, where they exist. The Mendocino General Plan does not specifically set acceptable noise levels for parks or timber properties. Established levels for similar land uses, such as agricultural areas, are deemed a compatible land uses in noisy environments. The General Plan also recognizes timber harvest related noise as necessary within timber production areas. The implementation of alternatives A, D, E, and F would involve less harvesting activity than implementation of alternative C1 (the May 2002 DFMP) or C2 (the November 2002 Plan), and thus cause less noise impacts. Implementation of Alternative B, with higher harvesting levels, would cause greater noise impacts.

Although the analysis does not indicate the need for a mitigation to ensure that general plan or other standards are not exceeded, the following mitigation has been developed for application.

Mitigation 1: While timber operations are generally limited to daylight hours when many people are away from home, logging adjacent to rural residential homes and neighborhoods will generate noise. Noise will be mitigated on a site-specific basis, taking into account the nature of the area and the inhabitants, or receptors. Options to reduce noise impacts might include limiting operations to weekdays, keeping landings and heavy equipment as far away from receptors as feasible, and where necessary, utilizing methods and machinery that are less noisy.

Mitigation Monitoring:

<u>Timing:</u>	During the life of the JDSF Management Plan
<u>Scope:</u>	Forest-wide
<u>Implementation:</u>	CDF
<u>Monitoring Responsibility:</u>	CDF
<u>Parameters to be Monitored:</u>	Noise levels created by site-specific project activity near rural residential neighborhoods adjacent to JDSF.

Impact 2: Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels. (No Impact)

Significant ground-borne noise and vibration are typically caused by activities such as blasting and pile driving which are not anticipated to result from implementation of the DFMP or any of the other alternatives considered. Development or expansion of rock quarries on JDSF would fall under the permitting procedure of the County of Mendocino Planning Department, which implements the State Reclamation and Mining Act. The County would first require CDF to prepare a CEQA document to address and mitigate the environmental impacts of the proposed quarry operation.

Mitigation: None required.

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Impact 3: Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing (without the project). (No Impact)

All substantial noise levels resulting from implementation of the JDSF Management Plan are temporary and infrequent. No permanent increases in ambient noise levels in the project vicinity above existing levels are expected to result from implementation of the DFMP or any of the other alternatives.

Mitigation: None Required.

Impact 4: A substantial temporary or periodic increase in ambient noise levels above levels existing (without the project) will accompany any logging operations conducted under the DFMP. Sources of noise associated with logging likely to impact the noise environment in JDSF may include log trucks, yarding equipment, tractors, helicopters, saws, and other equipment. (Less than Significant after Mitigation)

There will be no impacts to ambient noise levels from logging operations under Alternative A, since there is no logging in this alternative. Alternative B proposes the highest average annual harvest level (an average of 35.6 million board feet (MMBF)/year during the first ten years of plan implementation), followed by alternatives C1 and C2 (31 MMBF/year), D (24.9 MMBF/year), E (8.1 MMBF/year), and F (19.3 MMBF/year).

Mitigation 2: Active timber operations within the vicinity of occupied campgrounds and picnic areas will be limited to weekdays and non-holidays. Noise abatement mitigation will be included in any timber sale within 100 feet of an open campground or within 200 feet of a residence, park, or other identified sensitive receptor. Camp hosts will be kept informed of activities associated with timber operations affecting campgrounds under their jurisdiction.

Noise impacts on wildlife can be mitigated by avoiding nesting/breeding areas of noise-sensitive listed species during the critical reproductive and young-rearing months. The California Forest Practice Act and Rules require periodic wildlife surveys during the planning stage and just prior to implementation of timber harvesting plans to avoid significant wildlife disturbance impacts. JDSF will conduct area-wide wildlife surveys in viable habitats for listed species for one or more years prior to commencement of operations wherever timber operations are proposed. The data will be incorporated with other known locations of wildlife, both on and off the property, helping staff design operations for minimal impact to sensitive and listed species on the Jackson Demonstration State Forest. The data also may be used in demonstration and research studies.

Any proposed helicopter logging will use the Mendocino General Plan standards for residential dwellings in rural suburban communities as a guide in estimating noise

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impacts of specific timber harvest operations. Potential noise levels can generally be determined by considering the equipment used, time of use, terrain, and distance to sensitive receptors.

The following helicopter flight characteristics will be considered in the design of timber management operations to further mitigate noise impacts within and adjacent to JDSF where sensitive receptors are identified:

1. Buffer helicopter pads by using ridges or other solid sound attenuating landscape features where available and practical.
2. Design helicopter flight paths to provide buffering distance from hiking trails, campgrounds, and nest sites of listed species.
3. Where practical, design helicopter flight paths using terrain features that would reduce noise reception by sensitive receptors (i.e. fly behind ridges).
4. Limit times of day for helicopter use to reduce impacts when operating near residential neighborhoods and occupied campgrounds.

Logging operations will increase ambient noise levels near an active timber harvest; however, given the temporary, remote and seasonal nature of timber harvest, the above mitigation measures will reduce noise impacts to a less than significant level.

Mitigation Monitoring:

<u>Timing:</u>	During the life of the JDSF Management Plan
<u>Scope:</u>	Forest-wide
<u>Implementation:</u>	CDF using a sound level meter
<u>Monitoring Responsibility:</u>	CDF
<u>Parameters to be Monitored:</u>	Noise levels created by site-specific project activity
<u>Performance Criteria:</u>	Noise levels remain near or below standards within County General Plan

Impact 5: For a project located within two miles of an airport (or within an airport land use planning area) or a private airstrip, the project would expose people residing or working in the project area to excessive noise levels. (No Impact)

The project is not within two miles of a public or private airport and is not within an airport land use planning area.

Mitigation: None Required.

12.10. Cumulative Impacts of Noise Generating Activities

Cumulative impacts can result from a combination of two or more events that lead to a level of noise considered to be significant. Cumulative impacts can result from a

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combination of noise events created entirely within the bounds of JDSF, or in combination with events that occur beyond the bounds of JDSF (e.g. logging noise created on adjacent lands, traffic noise on nearby roads). Standards for what constitutes a significant cumulative noise impact in a forested setting are not well defined.

Impact 6: *A temporary or permanent accumulation of noise over space and time from two or more sources resulting in an impact on sensitive human receptors. (Less than Significant after Mitigation.)*

The most likely sensitive receptors would be recreational users within JDSF or adjacent state parks, or residents on the rural residential interface boundary of JDSF. JDSF projects are generally separated by time and space, not tending to accumulate near adjacent properties or recreation sites. Most of the high-use recreational sites within or adjacent to JDSF are buffered by distance from adjacent land uses, and therefore have a low potential to result in significant cumulative effects.

The most likely sources of noise with potential to accumulate include gunfire, chainsaws, logging and road maintenance equipment, trucks, and helicopter use.

The potential of the seven alternatives to result in significant cumulative noise impacts varies. Alternative A, with its minimal level of management activity, is not expected to result in such impacts. Alternatives B, C1 and C2, with their higher timber harvest levels, have a relatively higher potential to result in significant cumulative noise impacts. Alternatives D, E, and F are intermediate.

While the EIR and DFMP offer specific mitigation measures to lessen or avoid noise impacts from one source, sources can combine to create a significant cumulative effect.

Mitigation 3: Noise-generating management activities will be assessed for cumulative noise effects, and JDSF will incorporate mitigation measures to minimize them. Examples of mitigation that can be applied to projects include alteration of project methods, timing, location, scope, and duration. Trees have potential to buffer ambient (chronic) highway and residential noise, and site-specific retention should be considered to reduce potential impacts to residents or recreationalists.

Target shooting and chainsaws (firewood cutting) are generally the noisiest recreational activities, with potential individual and cumulative noise impact that may not be mitigated by distance. JDSF controls firewood cutting through the use of permits, so firewood collection locations can be controlled. Recreational shooting is not a controlled activity on the State Forest, although it is prohibited in specified areas around Mendocino Woodlands and the Parlin Fork and Chamberlain Creek Conservation Camps.. For harvesting and construction activities, mitigating noise to a level that is less than significant is accomplished by limiting days and hours of operation, as well as providing buffering distance, taking advantage of topographic features, and time

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between noise-creating activity and nearby sensitive receptors, and using equipment that makes less noise.

A precise estimate of noise produced in future projects is not possible, however noise can be predicted, mitigated, and monitored on projects as they are designed.

Mitigation Monitoring:

<u>Timing:</u>	During the life of the JDSF Management Plan
<u>Scope:</u>	Forest-wide
<u>Implementation:</u>	CDF
<u>Monitoring Responsibility:</u>	CDF
<u>Parameters to be Monitored:</u>	Noise levels created by management or recreational activity near rural residential neighborhoods adjacent to JDSF and near recreation sites within JDSF.

12.11 Management Alternatives and Noise Impacts

A comparison of potential noise impacts among the various alternatives is presented in Table VII.12.3.

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Table VII.12.3. Comparison of Potential Noise Related Impacts Among the Various alternatives.						
Alternatives						Discussion
Impact*	1	2	3	4	5	*Impact Levels: (1) Beneficial (2) No Impact (3) Less than Significant (4) Less than Significant after Mitigation (5) Significant–Mitigation Not Feasible
Impact 1. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.						
Alt. A						All activities are consistent with the policies of the General Plan, which provides specific allowances for timber operations. Although the analysis finds there would be no significant impact for any of the alternatives, a mitigation was developed to reduce potential noise impacts through mitigation on a site-specific basis, taking into account the nature of the area and the inhabitants, or receptors.
Alt. B						
Alt. C1 May 2002 DFMP						
Alt. C2 Nov. 2002 Plan						
Alt. D						
Alt. E						
Alt. F						
Impact 2. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.						
Alt. A						Substantial ground-borne noise typically results from blasting or pile driving. None of the alternatives would involve these or other ground-borne activities. However, if quarry development or expansion were proposed in the future, the impacts would be addressed separately under CEQA, in compliance with the State Reclamation and Mining Act. The permitting agency in this case is County of Mendocino Planning Dept.
Alt. B						
Alt. C1 May 2002 DFMP						
Alt. C2 Nov. 2002 Plan						
Alt. D						
Alt. E						
Alt. F						

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Table VII.12.3. Comparison of Potential Noise Related Impacts Among the Various Alternatives.						
Alternatives					Discussion	
Impact*	1	2	3	4	5	*Impact Levels: (1) Beneficial (2) No Impact (3) Less than Significant (4) Less than Significant after Mitigation (5) Significant–Mitigation Not Feasible
Impact 3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.						
Alt. A						All noise resulting from the project is temporary. None of the alternatives would result in permanent noise increase.
Alt. B						
Alt. C1 May 2002 DFMP						
Alt. C2 Nov. 2002 Plan						
Alt. D						
Alt. E						
Alt. F						
Impact 4. A substantial temporary increase in ambient noise levels in the project vicinity above levels existing without the project.						
Alt. A						This alternative would result in no logging-related noise. It would result in no active management regarding shooting and OHVs.
Alt. B						These alternatives will have some logging activities to varying intensities and frequencies, which will result in noise impacts. The noise impacts in all cases are less than significant given the mitigation measures specified.
Alt. C1 May 2002 DFMP						
Alt. C2 Nov. 2002 Plan						
Alt. D						
Alt. E						
Alt. F						

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Table VII.12.3. Comparison of Potential Noise Related Impacts Among the Various Alternatives.						
Alternatives						Discussion
Impact*	1	2	3	4	5	*Impact Levels: (1) Beneficial (2) No Impact (3) Less than Significant (4) Less than Significant after Mitigation (5) Significant–Mitigation Not Feasible
Impact 5. For a project located within two miles of an airport (or within an airport land use planning area) or a private airstrip, the project would expose people residing or working in the project area to excessive noise levels.						
Alt. A						The project is not within an airport land use planning area, or within two miles of a public airport or private airstrip.
Alt. B						
Alt. C1 May 2002 DFMP						
Alt. C2 Nov. 2002 Plan						
Alt. D						
Alt. E						
Alt. F						
Impact 6. A temporary or permanent accumulation of noise over space and time from two or more sources resulting in an impact on sensitive human receptors.						
Alt. A						The minimal level of management activity under this alternative does not have the potential to result in significant cumulative noise impacts.
Alt. B						These alternatives will have some logging activities to varying intensities and frequencies, which will result in noise impacts and have some potential to result in a significant cumulative impact across multiple sources, time, and space. The noise impacts in all cases will be less than significant given the mitigation measures specified.
Alt. C1 May 2002 DFMP						
Alt. C2 Nov. 2002 Plan						
Alt. D						
Alt. E						
Alt. F						