

been prepared that will ensure that measures are taken to prevent erosion, including mass wasting. Operations will not occur on any identified unstable areas.

Scouring

Scouring is described in the Forest Practice Rules as "Stream channels that have been stripped of gravel and finer bed materials by large flow events or debris torrents. Streamside vegetation has often been swept away, and the channel has a raw, eroded appearance." Large flow events are described below under the discussion of flooding. These flood events resulted in the scouring of some small portions of streams within the assessment area, however because of the significant amount of gravel and finer bed materials within the watercourses in the assessment area these materials remained in most areas. Very few channels in the assessment area exhibit a raw, eroded appearance and the level of scouring should be considered low.

Organic Debris

Debris in the watercourse can have either a positive or negative impact depending on the amount and stability of the material. Some stable organic debris present in the watercourse helps to form pools and retard sediment transport and downcutting in small to medium sized streams with relatively steep gradients. Large accumulations of organic debris can block fish passage, block or divert streamflow, or could be released as a debris flow.

Large trees that fall into coastal streams play a dominant role in forming pools, metering sediment, trapping spawning gravels and creating a more complex stream environment. Redwoods are particularly valuable because a large tree may not decay for several hundred years (Kelly et al., 1995). Fir and spruce trees last for several decades while alder and hardwood species rot within a few years of being recruited into the stream (Cedarholm et al., 1997). In general, the larger the size of the woody debris, the greater its stability in the stream channel. Heavier pieces require higher flows for mobilization and longer pieces are more likely to be caught by the stream bank and its vegetation (Spence et al., 1996). Reeves et al. (1993) found "that wood is a primary element influencing habitat diversity and complexity in streams. Consequences of decreased amounts of wood include loss of cover and structural complexity, decreased availability and abundance of habitat units, and reduced varieties of current velocities and other hydraulic features."

As has been noted, there is a lack of pool habitat within many of the watercourses within the assessment area and an increase in the available large woody debris would help to create additional pool structure. The proposed operations will not occur adjacent to watercourses, which will allow for the recruitment of large woody debris.

Please also see the discussion of organic debris above.

Streamside Vegetation

Stream-side vegetation and near-stream vegetation provide shade or cover to the stream, which may have an impact on water temperature, and provides root systems that stabilize streambanks and floodplains and filter sediment from flood flows. Root systems of terrestrial vegetation provide a natural stabilizing factor of streamside banks in addition to providing terrestrial insect drop (i.e. fish food) and nutrients in the form of leaf litter and organic material. Leaf litter, organic material and their associated nutrients are known to be utilized as a food source by benthic

macroinvertebrates, which in turn are a major food source of fish. Terrestrial vegetative bank protection is very substantial in the form of large conifers, hardwoods, sedges, grasses, ferns, and various berries in this watershed.

To some degree, vegetation patterns in the Gualala basin are driven by geology, with grasslands, oak woodlands and mixed oak-fir forests occurring in the eastern part of the watershed, which is underlain by the Central Belt Franciscan formation. The Ohlsen Ranch formation in the upper South Fork and the western Wheatfield also has a similar vegetation type. The Coastal Belt Franciscan formation lies in the west of the watershed and provides the best forest soils.

Surveys conducted by the RPF preparing this plan of watercourses adjacent to the plan area determined that stream side vegetation levels were high. Stream side vegetation consisted of redwood, Douglas fir, tan oak, madrone, manzanita, huckleberry, and sword fern. Canopy cover was determined to average 80%. The stream side vegetation was determined to be providing more than adequate cover and was stabilizing the stream banks. As there will be no operations in these areas the proposed plan will not have an adverse impact on stream side vegetation.

Recent floods

There is no evidence that recent high flow events have had a significant impact on the current watercourse conditions other than contributing to the recovery of habitat by flushing stored sediment through the system. The California Department of Water Resources noted in the Gualala River Watershed Assessment that major, recent high flow events in the Gualala basin besides 1955 and 1964, were 1974, 1986, 1993, 1995 and 1997.

It has been acknowledged that this proposed plan is occurring within a watershed with threatened or impaired values. The mitigation measures stated throughout the plan and specifically those stated in items 18, 21 and 26 of Section II have been incorporated into the plan to address cumulative effects within the Watershed Assessment Area, Biological Assessment Area, and the other assessment areas. With the mitigations proposed in this conversion THP and ECP this project alone or in combination with past, present, or reasonably foreseeable probable future projects will not have a significant cumulative impact on watershed resources.

Mitigations Proposed to Prevent Adverse Impacts to the Watershed Assessment Area:

1. No timber harvesting or timber operations within the WLPZs adjacent to the conversion THP area.
2. Directional felling of timber adjacent to the WLPZs away from the zone to protect the integrity of the zone.
3. The LTO shall not pile dirt and debris within or adjacent to the edge of the WLPZs.
4. Branches and tops of conifers, root wads and hardwoods shall not be piled for burning adjacent to WLPZs.
5. Timberland conversion operations (i.e. non-merchantable vegetation removal and stump removal) shall be immediately followed by initial vineyard development operations. Where this is not possible, skid trails and areas of exposed mineral soil created by commercial timber

harvest operations will be grass seeded and mulched prior to November 15th of the timber operations season.

6. Implementation of the Erosion Control Plan designed by a professional engineer.
7. Implementation of mitigation measures included within the project EIR.
8. Operations between October 15th and November 15th shall cease when 3" of rainfall has been recorded on-site.
9. In addition, the Forest Practice Rules require that the LTO not do either of the following during timber operations:
 - Place, discharge, or dispose of or deposit in such a manner as to permit to pass into the waters of the state, any substance or materials, including, but not limited to, soil, silt, bark, slash, sawdust, or petroleum, in quantities deleterious to fish, wildlife, beneficial functions of riparian zones, or the quality and beneficial uses of water;
 - Remove water, trees or large woody debris from a watercourse or lake, the adjacent riparian area, or the adjacent flood plain in quantities deleterious to fish, wildlife, beneficial functions of riparian zones, or the quality and beneficial uses of water.

Application of the best management practices, in conjunction with the mitigations proposed in this THP will ensure that the proposed harvest will not have a significant adverse impact to the watershed assessment area.

2. Soil Productivity:

The assessment area for the impact to soil is the proposed plan area. A skid trail system and road system will access the timber with limited soil disturbance and loss of potential soil productivity. The Erosion Control Plan will include the necessary mitigations for the protection of the soil resource, and will address the drainage of truck roads, sediment control structures, vineyard drainage infrastructure, and a nutrient rich cover crop.

Past Projects

The conversion THP area has a long history of agricultural use by humans. During the late 1800's and early 1900's a portion of the plan area was converted to orchard and grassland for grazing. It is likely that the orchard was operated until the 50's or 60's as remnants of the orchard still exist on the plan area today. Past timber harvesting activity on the plan area was conducted using standard tractor yarding. The California Department of Forestry and Fire Protection does not have any record of timber harvesting on the plan area within the last 20 years. Within the last 20 years it is likely that the property has been used primarily for recreation by the landowner. Portions of the project area were used as a mill site used in conjunction with past harvest activity.

Future Projects

With the exception of the proposed timberland conversion and vineyard development there are no known future projects planned for the Soil Productivity Assessment Area. It is most likely that grape production will be the only future activity conducted on the Soil Productivity

Assessment Area. All portions of the plan submitter's property outside of the project area will be placed in habitat reserves for the protection of exiting resources including soils.

Cumulative soil productivity impacts occur when the effects of two or more activities, from the same or different projects, combine to produce a significant decrease in soil biomass production potential. These impacts most often occur on-site within the project boundary, and the relative severity of productivity losses for a given level of impact generally increases as site quality declines. The primary factors influencing soil productivity that can be affected by timber operations include: **organic matter loss, surface soil loss, soil compaction, and growing space loss.**

Organic Matter Loss

Organic matter loss is expected to result from this conversion THP because merchantable portions of conifer trees will be removed from the site and limbs, tops and hardwoods will be chipped or burned, thus removing the majority of existing standing organic matter from the site. However, leaf material and smaller branches from trees will be left on site and ripped and tilled into the soil within the conversion THP area. In addition, compost material will be brought onto the site and used as an organic matter soil amendment. The installation of erosion control structures, the planting of perennial and annual grasses, and the placement of straw mulching as a temporary cover, will reduce the loss of organic material and aid in the building of a new source of organic matter. Due to the planned addition of soil amendments proposed as a part of the vineyard development operations, it is likely that site soil productivity will likely increase as a result of the proposed viticulture activity.

Surface Soil Loss

A significant loss of surface soil will not result from the proposed timber operation. Some loss of surface soil is unavoidable, however, significant surface soil loss will be minimized due to the fact that the timberland conversion operations (i.e. removal of vegetation and stumps) shall be immediately followed by initial vineyard development operations. Where this is not possible, stumps will not be removed and skid trails and areas of exposed mineral soil resulting from timber harvest operations will be grass seeded and mulched. Virtually all of this soil will be stabilized by the installation of erosion control structures, the planting of perennial and annual grasses, and the placement of straw mulching as a temporary cover. An Erosion Control Plan has been prepared for the proposed Timberland Conversion and Vineyard Development. Please refer to the Erosion Control Plan for a detailed explanation of the Erosion Control measures to be implemented as a part of vineyard development operations.

Soil Compaction

Compaction affects site productivity through loss of large soil pores that transmit air and water in the soil and by restricting root penetration. Compaction effects may be evaluated by considering the soil conditions at the time of harvesting activities and the proportion of the project area subjected to compacting forces.

The Goldridge series comprises a majority of the assessment area and consists of deep and very deep, moderately well drained soils formed in material weathered from weakly consolidated sandstone. During timber operations heavy equipment will utilize existing skid trails, thus limiting the area subjected to compaction. In addition, soil compaction is not expected to be a

significant problem because timber harvesting operations and conversion operations will not be conducted on saturated soils (saturated soil is as defined in the Forest Practice Rules).

Upon completion of timber harvesting operations, a large majority of the area will be exposed to tractor operations, however these tractor operations will be for the purpose of ripping and tilling the soil, thus reducing the existing level of soil compaction on the conversion units.

Growing Space Loss

The entire Timberland Conversion area will result in growing space loss for trees. However the vineyard units are designed to maximize the acreage under permanent vegetative cover. This includes not only the vines but also the annual cover grasses and forbs and mulch. Access roads for farm machinery and other equipment shall be of minimum width and length for vineyard maintenance. The timber will be accessed using the minimum amount of skid trails; this will also help minimize the loss of growing space.

The long term productivity of the soil is not expected to be lost because of the planned erosion control measures and maintenance of the present soil structure through minimal soil displacement. At anytime in the future, the conversion units can be returned to forest crops without a loss in productivity.

Mitigations Proposed to Prevent Adverse Impacts to the Soils Assessment Area:

- Implementation of the Erosion Control Plan designed by a professional engineer.
- No timber operations during the winter period (November 15th – April 1st).
- Timberland conversion operations (i.e. non-merchantable vegetation removal and stump removal shall be immediately followed by initial vineyard development operations. Where this is not possible, skid trails and areas of exposed mineral soil created by commercial timber harvest operations will be grass seeded and mulched prior to November 15th of the timber operations season.
- Timber harvesting operations and conversion operations will not be conducted on saturated soils.
- Soil stabilization by the installation of erosion control structures, the planting of perennial and annual grasses, and the placement of straw mulching as a temporary cover.

As indicated above, the proposed conversion THP will not result in significant organic matter loss, surface soil loss, soil compaction or growing space loss. As such, the proposed conversion timber operation will not have an adverse impact on the soil resource of the assessment area.

3. Biological Resources:

The biological assessment area for this THP is the area within 1.3 miles of the THP, approximately 7,140 acres. A broad array of habitats are encountered across the biological assessment area. This assessment area as described is large enough to account for any effects that may be caused by this THP.

Past Projects:

Past projects within this assessment area are similar to those discussed within the watershed assessment section above. Past timber harvesting has had a role in the condition of the assessment area. The following table includes a summary of these THPs.

Silvicultural Methods:

- | | | |
|-----------------------------------|---------------------------------------|---------------------------------|
| SEL - Selection | REH - Rehabilitation | CC - Clearcut |
| TRN - Transition | ALT – Alternative Prescription | VAR – Variable Retention |
| SWR - Shelterwood Removal | STR – Seed Tree Removal | SS - Sanitation Salvage |
| STSS - Seed Tree Seed Step | CT - Commercial Thin | GS -Group Selection |

Logging Method:

- C** – Cable
- T** – Tractor
- FB** – Feller Buncher
- H** – Helicopter

Comments:

- 1**- Completed
- 2**- Approved not yet completed
- 3** - Submitted Not Approved

<u>THP#</u>	<u>Acres</u>	<u>Silvicultural Method</u>	<u>Logging Method</u>	<u>Comments</u>	<u>Location</u>
1-08-124 SON	126	STR, SEL	T	2	T10N R14W Sec. 14
1-08-121 SON	206	VAR	C	3	T10N R14W Sec. 25
1-08-093 SON	112	VAR	T, C	3	T10N R13W Sec. 29 & 30
1-08-078 SON	40	TRN	T, C	3	T10N R14W Sec. 11
1-08-021 SON	128	CC	T	2	T10N R14W Sec. 4, 5, 9 & 10
1-07-028 SON	185	ALT, REH	T, C	2	T10N R14W Sec. 24 T10N R13W Sec. 18 & 19
1-06-192 SON	200	ALT	T,C,H	2	T10N R13W Sec. 20, 28 & 29
1-06-110 SON	135	ALT, REH	T, C	2	T10N R14W Sec. 23,25,26&30
1-06-NTMP-009	160	GS	T, C	2	T10N R13W Sec. 7 T10N R14W Sec. 11&12
1-06-NTMP-001	628	SEL, GS	T, C	2	T10N R13W Sec. 6, 7 & 8
1-04-096 SON	180	TRN, ALT	T	2	T10N R13W Sec. 20 & 21
1-04-059 SON	26	Conversion	T	1	T10N R13W Sec. 12
1-04-055 SON	8	Conversion	T	1	T10N R13W Sec. 12
1-04-045 SON	330	TRN,ALT,REH,VAR,STR	T, C	2	T10N R13W Sec. 18, 19 & 20
1-01-202 SON	12	Conversion	T	1	T10N R13W Sec. 17
1-00-328 SON	70	STR	T	1	T10N R13W Sec. 12
1-00-147 SON	68	Conversion	T	1	T10N R13W Sec. 7
1-00-129 SON	237	STR, ALT, REH	T, FB, C	1	T10N R14W Sec. 13, 24 T10N R13W Sec. 19
1-00NTMP-073	85	SEL	T	2	T10N R14W Sec. 11, 12, 13, 14
1-99-426 SON	35	STR	T	1	T10N R14W Sec. 35
1-99-390 SON	20	SEL	T	1	T10N R14W Sec. 18
1-99NTMP-021	38	SEL	T	2	T10N R14W Sec. 13
Total	3,029				

As indicated in the table above, approximately 42% of the 7,140 acre biological assessment area has had harvest plans filed upon it within the last 10 years.

Future Projects:

Historically, the Biological Assessment Area has been managed for the production of timber products, grazing, agriculture, viticulture and homesite development. Due to the good market for high quality wine grapes that currently exists, it is likely that viticulture will continue to increase as a landuse activity within the Biological Assessment Area. However, it is likely that the market for these wine grapes will eventually become saturated, and vineyard development will stabilize. Based on the historic land use of the area and current market trends it is likely that viticulture, timber production, homesite development (residential uses) and grazing will continue to take place in the future.

Rare, Threatened, Endangered and Special Concern Species:

Species of concern are those identified as known Rare, Threatened or Endangered listed (US & CA) species and Sensitive Species (BOF). The Natural Diversity Data Base (NDDB) of the California Department of Fish and Game (DFG), California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California, the California Wildlife Habitat Relationships System (WHR) and various wildlife biologists were consulted for occurrences of special plants, animals and natural communities on the biological assessment area. For additional discussion of the botanical and wildlife assessment and surveys conducted please refer to Chapter 3.4 of the project EIR.

The following is a list of Sensitive, Rare, Threatened and Endangered species which have been identified as potentially occurring within the Biological Assessment Area:

Birds

Bald eagle (*Haliaeetus leucocephalus*): (Status: Federal Threatened, California Endangered, CDF Sensitive Species) Uses large, old growth trees or snags, in remote, mixed stands near large bodies of water. Nest of sticks, often uses largest tree in stand, with some shading. Require large bodies of water or free-flowing rivers with suitable snags and other perches. Found in a variety of habitats that have permanent water sources. Nests are built in tall trees, typically 50 to 200 feet above the ground. Large, stoutly-branched trees, snags, or broken-topped trees provide suitable cover. This species will also perch on large rocks. Bald eagles consume a variety of fish, small mammals and water birds. Hunting typically involves swooping onto prey from a perch or from soaring flight. Carrion is also consumed. Nesting typically involves stands with 40% or less canopy. Platform stick nests are built just below tree crown. A variety of tree species are used. Peak breeding activity occurs March through June, although the breeding season extends from February through July. The incubation period is approximately 35 days.

The conversion THP area does not provide habitat for bald eagles. There are no large bodies of water or free flowing rivers on the project area. Bald Eagles are a winter visitor to the northern part of Sonoma County but there are no recent breeding records. Bald eagle habitat can be found along the Wheatfield Fork of the Gualala River. No Bald Eagles were detected during preparation of this plan or during raptor/wildlife surveys. This plan as proposed will not affect Bald Eagle habitat within the Biological Assessment area and thus will not have a significant effect on this species.

Golden Eagle (*Aquila chrysaetos*): (Status: CDF Sensitive Species, California Species of Special Concern) The golden eagle typically inhabits rolling foothills, mountain areas, sage-juniper flats, cliffs, rock outcrops and deserts. Open terrain for hunting is a necessity with such conditions being provided by grasslands, deserts, savannahs and early-successional forests. Cliffs and large trees are required for nesting. Major food sources include lagomorphs (rabbits and hares) and rodents, as well as lesser amounts of mammals, birds, reptiles and carrion. The Golden eagle has also been known to take calves and lambs. Typical hunting methodology consists of high elevation soaring (100 to 300 feet) or low, sweeping gliding. Less common approaches include locating prey from a perch or pirating from other predators. The breeding season is late January through August with peak activity occurring between March and July. Eggs are laid early February to mid-May. The incubation period is approximately 44 days of a 65- to 70-day nesting period. Nests may be abandoned if disturbed by humans during early incubation.

Golden eagles have been observed in this part of Sonoma County, however no known nest sites have been located within the assessment area and no golden eagles were detected during wildlife surveys or general fieldwork. Suitable habitat is available within the plan area and throughout biological assessment area for foraging and limited nesting. The proposed project will not reduce the amount of open terrain available for foraging and there will be portions of the property set aside for the recruitment of large trees suitable for nesting.

Peregrine Falcon (*Falco peregrinus*): (Status: Federal Endangered, California Endangered, CDF Sensitive Species) Uses bodies of water in open areas with cliffs and canyons nearby for cover and nesting. Prey mostly on birds (in flight). Nest is a scrape on depression or ledge in open area. Man-made structures are also used; abandoned raptor nests and tree cavities occasionally used. Typical habitat for the peregrine falcon includes bodies of water in open areas with cliffs and canyons nearby. A variety of vegetative communities that possess the necessary water sources provide suitable habitat for this species. The peregrine breeds near wetlands, lakes, rivers or other water sources on high cliffs banks, dunes and mounds. The breeding season extends from March to late August. The incubation period is approximately 32 days.

No suitable nesting habitat and only limited foraging habitat is located within or adjacent to the project area. The proposed project will therefore have no significant adverse impact to this species.

Northern Spotted Owl (*Strix occidentalis caurina*): (Status: Federal Threatened, CDF Sensitive Species) Uses mature forest with permanent water and suitable nesting trees or snags. Prefer narrow, steep canyons with north-facing slopes. Prey mostly on small mammals. Nests in tree or

snag cavity or broken top of large tree. Abandoned raven or raptor nests are also utilized. It typically inhabits dense, old growth, multi-layered mixed conifer, redwood and Douglas-fir forests in narrow, steep-sided canyons with north-facing slopes. A water source in close proximity to the nest site and roost site are believed to be required. The primary prey of the spotted owl is the woodrat, although flying squirrels, mice, voles and rabbits are also taken. Small birds, bats and arthropods are also consumed. Hunting is usually done by swooping onto prey from a perch or pouncing on prey in vegetation or on the ground. Excess food may be cached. Mature, multi-layered forests are thought to be required for breeding. Breeding occurs from early March through June with peak activity in April and May. A pair may use the same breeding site for 5 to 10 years, although they may not breed every year. The spotted owl is very sensitive to habitat destruction and fragmentation.

The plan area has been surveyed for the Northern Spotted Owl (NSO) every year from 2000-2007. No NSO were detected during any of the surveys. A query of the NSO database revealed two NSO territories within 1.3 miles of the plan boundary. The project as proposed will not reduce the amount of suitable habitat available below those standards described in 14 CCR 919.9. NSO protection measures are described in Section II of the THP under item #32.

Osprey (*Pandion haliaetus*): (Status: CDF Sensitive Species, California Species of Special Concern) Uses large snags and open trees near large bodies of water for feeding, cover and nesting. Nests on a platform of sticks at top of snags. The osprey inhabits wooded habitats that have large bodies of fish-bearing waters and abundant snags and open trees. They are found in ponderosa pine through mixed conifer forests. Suitable water-bodies include rivers, lakes, bays, estuaries and surf zones. Fish is the principle prey of osprey, with lesser amounts of mammals, birds, reptiles, amphibians and invertebrates. Prey is caught from flight, hovering or swooping from perches. Platform-stick nests are built at the top of large snags, dead-topped trees, on cliffs or on human-made platforms. Ospreys have been observed nesting 250 feet above the ground. Nests are typically located within $\frac{1}{3}$ -mile of water, although nests 1 mile from water are occasionally observed. Breeding is initiated around March and continues through September. Colonial nesting in this species is common. Breeding success has increased since the early 1970s.

Osprey have been observed along the coast line approximately 4.5 miles west of the project area and may potentially utilize the Wheatfield Fork of the Gualala River, however no known nest sites are located within the assessment area. No signs of any osprey nest or roost site were located on the project area. The proposed project will have no adverse impact to habitat for this species and thus will not have a significant effect on this species.

Great Blue Heron (*Ardea herodias*): (Status: CDF Sensitive Species) feeds on small fish and frogs in shallow waters, and prefers secluded groves of tall trees near shallow water feeding areas for colonial nesting. The heron is common in shallow estuary systems as well as fresh and saline emergent wetlands and are less common along riverine systems, rocky coastlines, croplands, and mountainous areas. Inhabits shallow estuaries and fresh and saline emergent wetlands near forested habitats. This species will also utilize riverine environments as well as croplands,

pastures, and mountains above foothills. Diet consists of fish, rodents, amphibians, snakes, lizards, insects, crustaceans and occasionally small birds. A majority of the diet--75%--consists of fish. Most fish consumed by herons are species not typically consumed by humans. Hunting involves standing motionless or slowly moving and quickly striking and grasping their prey. Nesting usually occurs in groups (rookeries) in the tops of tall trees or snags. The tallest trees are usually the preferred nesting sites. Heron rarely nest elsewhere than in their preferred habitat. Rookeries should be protected from human disturbance as nest abandonment is a typical result of disturbance. As a rule, herons are most active around dawn and dusk. Eggs are laid in late-February and March. The incubation period lasts about 28 days. Young herons are capable of flight by 7 weeks of age, but may remain at the nest until week 11.

Habitat for the great blue heron does not exist on the conversion THP area. Some habitat could exist within the assessment area adjacent to the Wheatfield Fork of the Gualala, however no sightings have been recorded in the area to date. As there is no habitat within the proposed project area and no herons have been detected within the assessment area, the conversion THP as proposed will not likely have a negative affect on the Great Blue Heron.

Great egret (*Casmerodius albus*): (Status: CDF Sensitive Species) Requires groves of trees suitable for nesting and roosting, relatively isolated from human activities, near aquatic foraging areas. Prey on small fish, aquatic insects, crabs, frogs, etc. Prefer to forage in shallow, relatively still waters of estuaries, lakes, slow moving watercourses, salt ponds, or mud flats. Colonial nesters that build groups of platform nests in large trees or snags, usually near a feeding area. Great egrets are highly dependent upon wetland habitats and riparian areas. The great egret requires forested areas for nesting and roosting and aquatic habitat for foraging. Night roosting and nesting occurs in trees; day roosting occurs in feeding habitat. Typical feeding habitats include fresh and saline emergent wetlands, the edges of estuaries, lakes and slow-moving rivers, mudflats and salt ponds and irrigated croplands and pastures. The egret's diet consists of small mammals, fish, crustaceans, insects, amphibians, snakes, and snails. The method of hunting is similar to the great blue heron--standing motionless or stalking slowing then rapidly striking their prey is customary. Nesting typically occurs away from human disturbance. March through July is the primary nesting period. Nests are built of sticks and stems of marsh plants in tall trees. The incubation period is approximately 26 days. The young are thought to fly after 5 to 6 weeks. Egret and great blue heron often nest together. Egrets are susceptible to human disturbance during nesting and nest abandonment is often the result of human activity in nesting areas.

Habitat for the great egret does not exist within the conversion THP area. Some habitat may exist within Biological Assessment Area, but no sightings have been recorded in the area. No roosting or nesting sites were located within the project area. The THP as proposed will not affect the habitat for the Great Egret.

Northern Goshawk (*Accipiter gentilis*) (Status: Board of Forestry Sensitive Species and Department of Fish and Game Species of Special Concern.) This species is listed as a yearlong resident in the northern half of Mendocino County and while the typically used habitat extends into Sonoma County, there are no records of any nesting pair in Sonoma County. WHR states that this species uses larger diameter conifer and deciduous stands for cover and nests in the most dense parts of the stand. While hunting, snags and dead-topped trees are often used for

observation and prey-plucking perches. Habitat suitable for this species is present within the watershed. The NDDDB query noted one report of a northern goshawk on the Ornbaun Valley quadrangle in the Mailliard State Reserve 15 miles northeast of the Biological Assessment Area.

No Goshawks were detected on the plan area during wildlife surveys or general fieldwork. No sign of this species was located on the plan area. The project area is mainly composed of a dense stand of small diameter, young growth trees not typical of goshawk habitat. The operation of this plan will have no adverse impact on this species. A conservation easement has been proposed in conjunction with this plan setting aside portions of the property that could eventually develop into suitable habitat.

Northern Harrier (*Circus cyaneus*): (Status: Department of Fish and Game Species of Special Concern) Found in flat, or hummocky, open areas of tall, dense grasses and moist or dry shrubs and marsh habitat. It frequents meadows, grasslands, open rangelands, desert sinks and fresh and salt water emergent wetlands. It does not commonly occur in wooded areas. Prey mostly voles, other small mammals, birds, frogs, etc. Hunts from low perches or by flying close to the ground. They seldom soar except to migrate or during courtship display. Nests on ground in shrubby vegetation, usually at marsh edge. The harrier breeds April to September with peak activity in June and July. The nesting period lasts about 53 days. Clutch-size average 5 eggs. The California population has declined in recent years as a result of wetland drainage, grassland conversion to agriculture and burning and plowing of nesting areas during critical stages of breeding.

Habitat for the northern harrier is located on and adjacent to the conversion THP area and it is probable that this species utilizes grassland areas throughout the assessment area. The conversion of existing fields to vineyards as proposed will result in a reduction of northern harrier breeding habitat. The area of grassland proposed for conversion is relatively small (approximately 15 acres) and suitable habitat for the northern harrier exists throughout the Biological Assessment Area, therefore the proposed operations will not result in a significant reduction in this habitat. In addition, the conservation area proposed as a part of this plan contains suitable habitat that will remain protected. As such, the proposed conversion THP will not have a significant adverse affect on northern harriers.

Sharp-shinned hawk (*Accipiter striatus*): (Status: California Species of Special Concern) Forested habitats with openings in close proximity are the preferred nesting and cover environment. Dense, even-aged, single-layered stands of timber provide the ideal nesting habitat. A water source is usually within 300 feet of the nest. Birds are the primary prey of the sharp-shinned hawk, mostly birds smaller than jays. Small mammals, reptiles, insects and amphibians are also consumed. Hunting consists of sudden flight from perch sites, although the low, sweeping flight of the harrier is also utilized. Openings at the edges of woodlands, hedgerows, brushy pastures and shorelines are preferred hunting habitats. Nests are usually built in dense, pole and small-tree stands of conifers that are cool, moist and well shaded. Nests are typically built in dense foliage against the trunk or in the crotch of a large branch. The sharp-shinned hawk nest is the most inconspicuous of all *Accipiter* nests. The breeding period is April through August with peak activity in late May and June. The incubation period is approximately 34 days with the young fledged at 60 days. This species is an important predator of small birds. It is the

least common breeding *Accipiter* in California and is a rare breeder in Sonoma County.

The sharp-shinned hawk could potentially utilize the habitat within and surrounding the project area, however no sharp-shinned hawks were detected during plan preparation or during wildlife surveys. The preferred habitat of this species (densely forested habitats with openings in close proximity) will remain on the property following operations, therefore the proposed project is not expected have an adverse impact on this species.

Cooper’s Hawk (*Accipiter cooperii*): (Status: California Species of Special Concern). Preferred habitat consists of wooded areas that occur in patches within close proximity to water. Dense stands with moderate crown depths are utilized for nesting. Nesting usually occurs in second-growth conifer stands near streams. Hunting consists of explosive flights from perches or harrier-style low, gliding flight, using trees and terrain for concealment. Feed mostly on small birds, mammals, reptiles and amphibians. Cover is utilized to approach and attack prey. Breeding occurs March through August with peak activity in May, June and July. Incubation lasts between 35 and 65 days. Annual fledging success is (about) 2 young per pair. Widely distributed breeding species. Nests in live trees with good cover on a stick platform nest, lined with bark.

Cooper’s hawks are a relatively common bird of prey in most parts of the west and have been observed on the plan area and within the Biological Assessment Area. While Cooper’s hawks have been observed in the vicinity of the plan area, no nest sites have been detected on the plan area or within the assessment area. The preferred habitat of this species (wooded areas that occur in patches within close proximity to water) will remain on the property following operations, therefore the proposed project is not expected have an adverse impact to this species.

Red-shouldered Hawk (*Buteo lineatus*): Red-shouldered hawk is protected under the Migratory Bird Treaty Act (50 CFR 10.13) and under California Fish and Game Code Sections 3503, 3503.5, 3800, and 3513, which protect nesting raptors and their eggs/young. This medium-sized raptor prefers the largest trees in a particular area for nest construction. Blue gum eucalyptus (*Eucalyptus globulus*) trees have become favorite nesting trees for this species in California. A stick nest is constructed and usually two to four eggs are laid in the spring. Incubation lasts about 27 days. Usually two or three nests are built over a several year period by a nesting pair and then are reused year after year. Prey consists of reptiles and small rodents. The project site provides suitable nesting habitat for red shouldered hawk. Mitigation measures to protect this species as well as all wildlife species have been detailed below and under Item 32 in Section II of the THP.

Red-tailed Hawk (*Buteo jamaicensis*): The red-tailed hawk is protected under the Migratory Bird Treaty Act (50 CFR 10.13) and under California Fish and Game Code §3503.5, 3800, and 3513, which protect nesting raptors and their eggs/young. This raptor species has an extremely wide tolerance for habitat variation, which can be attributed to its very broad spectrum of prey (Johnsgard 1990). Some clear habitat preferences do exist, however, and have been analyzed by a variety of studies. Habitat preferences in the winter for both sexes are oriented toward upland pasture, grassland, and hardwood habitats, with females also using lowland hardwoods and males using marsh–shrub communities. In the spring, females continue to use mainly upland and lowland hardwoods, probably as a reflection of their orientation toward a nest site. Monk & Associates observed red-tailed hawks foraging over the project site on multiple occasions.

Furthermore, the project site provides suitable nesting habitat for red-tailed hawk. Mitigation measures to protect this species as well as all wildlife species have been detailed below and under Item 32 in Section II of the THP.

Merlin (*Falco columbarius*): (Status: California Species of Special Concern) The merlin is an uncommon winter resident of coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, edges and early successional stages; rarely makes use of heavily wooded areas or open deserts. The primary food source of the merlin is small birds, although small mammals and insects are also exploited. Hunting consists of low-flying searches with short dashes or dives. Prey is captured in the air or on the ground. The merlin does not breed in California.

The merlin could potentially be a sporadic winter visitor to the project area, however no merlins were detected during wildlife surveys or plan preparation. As with the sharp-shinned and Cooper's hawks, the preferred habitat of the merlin (open areas adjacent to woodlands) will remain following operations, therefore the proposed project is not expected have an adverse impact to this species.

Prairie falcon (*Falco mexicanus*): (Status: California Species of Special Concern) The Prairie falcon feeds on small mammals, birds, and reptiles. Requires cliff ledges for cover, and usually nests within ¼ mile of water. Prairie Falcons are known to inhabit open mountains, dry plains and prairies. These falcons require cliffs and rock promontories and earthen mounds for nesting. Prairie falcon numbers are declining due to rodent-poisoning programs and nest-robbing by falconers. These falcons occur in northwestern California during winter only and are entirely absent during the summer.

Prairie Falcons were not observed on or in the vicinity of the plan area during plan preparation or the raptor survey. No records show prairie falcons utilizing habitat within the assessment area. The proposed conversion THP will not have a significant adverse impact on Prairie Falcons.

White-tailed Kite (*Elanus leucurus*): (Status California Species of Special Concern) Uses herbaceous lowlands with variable tree growth and dense population of voles. Prey mostly voles, and other small diurnal mammals. Preferred nest locations are in dense oaks, willows or other tree stands. Makes nest of loosely piled sticks and twigs lined with grass, straw or roots, placed near top of dense oak, willow or other tree stand, near open foraging area. Inhabits low rolling foothills and valley margins with scattered oaks and river bottomlands or marshes adjacent to deciduous woodland. Cover is sought in dense canopies of various woody species. Requires open grasslands, meadows or marshes for foraging that are close to dense-topped trees for nesting and perching. The white-tailed kite is rarely encountered far from agricultural environments. Foraging occurs in undisturbed, open grasslands, meadows, farmlands and emergent wetlands. Voles and other small diurnal mammals constitute the primary diet; birds, reptiles, amphibians and insects are also taken. White-tailed kites hunt by soaring, gliding and hovering under 100 feet above the ground and then slowly descending on their prey. The breeding period is from February through October, with peak activity from May to August. The incubation period is approximately 28 days. Young fledge in 35 to 40 days.

Agricultural areas and grasslands surround the project area, providing favorable foraging habitat, however, no known kite nest sites are located within the assessment area. White-tailed kites have been observed foraging within the grassland portions of the project area and adjacent fields within the assessment area. As kites feed upon rodents that may be harmful to agricultural crops, an effort to provide habitat will be made by retaining the preferred nesting habitat of this species (dense oaks, willows or other tree stands located near open foraging grounds) on the property.

Marbled murrelet (*Brachyramphus marmoratus*): (Status: Federal Threatened, California Endangered, CDF sensitive species) require mature coastal coniferous forests for nesting and nearby coastal waters for feeding. In the summer the marbled murrelet feeds close to shore over shallow waters. It usually nests in old growth Coniferous Forest near the Pacific coast. The marbled murrelet is a secretive species that is still not well understood. Foraging is done in the ocean while nesting occurs in old-growth forests up to 40 miles from the coast. Nests are shallow depressions in moss and organic debris built on branches of large branches, often 100 feet or more above the ground. Summer foraging occurs close to shore (within $\frac{1}{3}$ -mile) in waters usually less than 95 feet deep. During nonbreeding seasons offshore foraging extends beyond $\frac{1}{3}$ -mile. The main prey is small fish that is pursued by diving birds. Sand lance is a favored prey; sea perch and fish from the families Osmeridae, Scorpaenidae, and Stichaeidae are consumed in lesser amounts. Nests appear to be located along major river systems. It is surmised that fledgling young are floated down the river to the ocean. Parents feed nestlings small fish. Breeding information is based on limited data. Eggs are laid from mid-May to mid-June. The incubation period is from mid-June to mid-August and last 30 days. Young are fledged from early July through early September. Both parents cooperate in incubating the eggs.

The plan area does not contain suitable habitat for marbled murrelets. There may be some marbled murrelet habitat within the Biological Assessment area although no marbled murrelets have been reported. The proposed conversion THP will not have an adverse impact on marbled murrelets as there is no suitable habitat on the conversion THP area. The portions of the property being set aside in a conservation easement for the benefit of wildlife species may eventually develop into suitable habitat for this species.

Western screech owl (*Otus kennicottii*) is protected under California Fish and Game Code Sections 3503, 3503.5, 3800, which protect nesting raptors, their eggs, and young. The owl is also protected under the Federal Migratory Bird Treaty Act (50 CFR 10.13). The western screech owl is fairly common in areas of oak woodland and in mixed oak and Douglas-fir forests. In Sonoma County the owl is fairly common in inland forests. The Sonoma County Breeding Bird Atlas has a “probable” nesting location for this owl along Annapolis Road. During nocturnal calling surveys for spotted owl on the project site, Monk & Associates heard western screech owls calling on multiple occasions. The distance of the calling owls could not be determined; therefore, the biologists were unable to determine if the owls calling were present on the project site or on adjacent lands. Regardless, because the project site’s forest provides suitable nesting habitat for this owl species, the owl’s presence onsite cannot be dismissed. Mitigation measures to protect this species as well as all wildlife species have been detailed below and under Item 32 in Section II of the THP.

Yellow Warbler (*Dendroica petechia*): (Status: California species of special concern) The yellow warbler is an uncommon to common migrant in northern California. It frequents open to medium-density woodlands and forests with a heavy brush understory (during the breeding period). During migration, a multitude of habitats are utilized, including sparse to dense woodlands and forests. Habitat most conducive to the yellow warbler during the breeding season is found in deciduous riparian areas with cottonwoods, alder, willow and other miscellaneous small trees and shrubs. Nests consist of an open cup placed approximately 2 to 16 feet above the ground in a deciduous sapling or shrub. Tall trees adjacent to the nest are used for singing and foraging. The breeding period is from mid-April into early August with peak activity occurring in June. The incubation period is 11 days with the young being fledged between days 9-12. Brood parasitism by brown-headed cowbirds plays a significant role in yellow warbler population declines.

Yellow warblers have been observed on the project site. Habitat for the yellow warbler is present on the conversion THP area and throughout the Biological Assessment Area. Habitat most conducive to the yellow warbler during the breeding season (deciduous riparian areas with cottonwoods, alder, willow and other miscellaneous small trees and shrubs) will be retained within the WLPZ and conservation areas. Mitigation measures to protect this species as well as all wildlife species have been detailed below and under Item 32 in Section II of the THP.

Mammals

Red Tree Vole (*Phenacomys longicaudus*) is listed by the California Department of Fish and Game as a California Species of Special Concern. Distributed along the North Coast from Sonoma Co. to Oregon border, more or less restricted to fog belt. Rare to uncommon throughout its range, but difficulty of locating nests and capturing individuals makes abundance hard to assess. Occurs in mature Douglas-fir, redwood, and Montane hardwood-conifer habitats in fog belt. Specializes on needles of Douglas-fir and grand fir. Needles and twigs gathered at night may be consumed, or brought to nest. Needle resin ducts are removed; remaining part is eaten, and resin ducts may be used to line nest cup. Males mostly in fir needle tree nest, or less often, in shallow burrows at base of tree, beneath litter. Females spend most of their lives in trees, constructing large, domed nursery nests of Douglas-fir needles, from 6-150 ft above ground. Medium to large nests are generally females, and small nests more likely males. Nests may be occupied by succeeding generations, increasing in size. Nests of Douglas-fir needles are constructed in trees, preferably tall trees. Nest may be situated on whorl of limbs against trunk, or at outer limits of branches. In young second-growth Douglas-fir, the broken tops of trees frequently are used. Nest site varies from 18in in length, breadth and height, to 3 ft in diameter, and 2-3 ft in height. Older nursery nests may encircle entire tree. Drinking water required. Water probably obtained from food, but individuals lick dew and rain off needles near nests. Yearlong activity. Nocturnal outside nest, but feeds in day on stored needles. Home range probably one to several fir trees, with females often living in one tree and males visiting several trees. Spotted owl is main predator of red tree voles throughout the geographical distribution, but saw-whet owls, and perhaps raccoons, are predators. Steller's jays may be the most important predators of tree mice. Severe winter storms probably affect local populations adversely.

The closest known record for the red tree vole is located approximately 4.0 miles southeast of the project site, near the Wheatfield Fork of the Gualala River. One tree vole nest was observed near the Wheatfield Fork in 1997. The conversion THP area does not contain mature stands of Douglas-fir or mixed conifer. No nests or signs (resin duct deposits) of red tree voles have been seen in the area. No significant impacts to this species are expected to occur from implementation of the proposed project.

Pacific Fisher (*Martes pennanti pacifica*) is listed by the California Department of Fish and Game as a California Species of Special Concern. The Fisher is known to inhabit intermediate to large-tree stages of coniferous forests and deciduous-riparian habitats with a high percent canopy closure. Suitable habitat for fishers consists of large areas of mature, dense forest stands with snags and greater than 50% canopy closure. WHR maps indicate that fishers are not currently known to inhabit Sonoma County, however historical records indicate that the fishers range may have extended as far south as Marin County in the Coastal Range.

Habitat for fisher does not exist within the conversion THP area and the Biological Assessment Area contains only scattered small pockets of suitable habitat for fisher. The proposed conservation easement area will retain habitat elements such as large trees, snags and downed woody debris. As such, the proposed conversion THP will not result in a significant adverse impact to fisher habitat within the Biological Assessment Area.

Humboldt marten (*Martes americana humboldtensis*)

The Humboldt marten is listed by the California Department of Fish and Game as a California Species of Special Concern and is endemic to coastal forests of northwestern California with a historical range described as “narrow northwest humid coast strip, chiefly within the redwood belt” from the Oregon border to northern Sonoma County (Slauson 2003). Martens require a variety of different-aged stands, particularly old-growth conifers and snags, which provide abundant cavities for denning and nesting. Tend to travel along ridgetops, and rarely move across large areas devoid of canopy cover. Small clearings, meadows, and riparian areas provide foraging habitats, particularly during snow-free periods.

Marten, or sign of marten have not been observed on the plan area or within the BAA. The plan area does not contain old-growth or late seral forest. The extensive rural residential use in the immediate vicinity of the plan area including roaming domestic dogs would discourage use of the site by marten, therefore the proposed THP will not result in a significant adverse impact to marten within the Biological Assessment Area.

Amphibians

Red-Legged Frog (Northern and California Red-Legged Frog)

Northern red-legged frog (*Rana aurora*) is a California “species of special concern.” This northern red-legged frog has no Federal status. Species of special concern are closely monitored for trends in population numbers because, in most cases, their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This title affords no legally mandated protection for this species; however, pursuant to the California Environmental Quality Act (CEQA) (14 CCR §15380), this title shall be presumed to indicate the species is rare for purposes of CEQA. Thus, northern red-legged frog should be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

The California red-legged frog (CRLF) (*Rana draytonii*) was federally listed as threatened on May 23, 1996 and as such is protected pursuant to the Federal Endangered Species Act. Critical habitat for this species was designated by USFWS on March 13, 2001 (Federal Register 66: 14625-14674); however on November 6, 2002 a court decision removed many of the critical habitat units that had been designated for the frog on March 13, 2001. On April 13, 2004 the USFWS re-proposed critical habitat for CRLF which was adopted on April 13, 2006. In September 2008, the USFWS again re-proposed critical habitat for the California red-legged frog (USFWS 2008). Closest mapped critical habitat or proposed critical habitat occurs in southern Sonoma County and in south-central Mendocino County. No critical habitat or proposed critical habitat is mapped any closer than approximately 28 miles (straight-line) from the project site. Unit MEN-1 is recently re-proposed critical habitat that is approximately 28 miles north of the project site. Units MRN 1, 2, and 3 are critical habitats that at the closest point to the project site are approximately 34 miles to the south. Critical habitat Units SON 1, 2, and 3 at their closest point to the project site are approximately 45 miles to the southeast. The closest record for the California red-legged frog to the project site

is approximately 9.7 miles northwest of the project site (CNDDDB Occurrence No. 967). The record location is for a pond in a Bishop pine (*Pinus muricata*) forest north of the Gualala River. The California red-legged frog is also a state "species of special concern." This title affords no legally mandated protection for this species; however, pursuant to CEQA (14 CCR §15380), any project related impacts to this species would be regarded as significant.

Until California red-legged frog critical habitat was proposed for revision by USFWS in September 2008 (op. cit.) the project site heretofore had been regarded as within the range of the northern red-legged frog. The California red-legged frog was typically regarded as occurring from Sonoma County in northern California south to northern Baja California, and inland through the northern Sacramento Valley into the foothills of the Sierra Nevada Mountains, south to Tulare County, and possibly Kern County. The northernmost extent of its confirmed range was the Russian River. In contrast the northern red-legged frog is regarded as occurring from Vancouver Island, British Columbia, Canada, south along the Pacific coast west of the Cascade ranges to northern California (northern Del Norte County). Formerly, red-legged frogs found from southern Del Norte to northern Marin County (the project site lies within this range) were believed to exhibit intergrade characteristics of both *the northern and California red-legged frog* (USFWS 1996). Relatively recently Schaeffer et al., as reported in the recently published Proposed Rule that re-proposes critical habitat of the California red-legged frog (USFWS 2008), that data obtained from a 2004 genetics study determined that *R. aurora* actually consists of two species, the northern red-legged frog and the California red-legged frog. In addition, it was reported that the ranges of these two frogs overlap only in a narrow zone in Mendocino County. Owing to the populations of California red-legged frog found in Mendocino County there is now evidence that the range of the California red-legged frog extends northward from its traditionally recognized coastal habitats in Marin and Sonoma Counties to Mendocino County.

Even though Monk & Associates did not regard the project site as suitable for occupation by red-legged frogs, Monk & Associates biologists conducted two diurnal and two nocturnal surveys in all aquatic habitats on the project site. This level of survey meets the standards of care required by the CEQA to address potential impacts to red-legged frogs. The surveys were conducted at a time when egg masses, if present, would have been detected. Had egg masses been present, they would have been easy to detect owing to the crystal clear and shallow water found on the project site. No red-legged frog egg masses, larvae, morphs, or adults were detected during formal surveys or during any other survey of the tributaries on the project site. Consequently, Monk & Associates concludes that red-legged frogs do not occur on the project site and that the proposed project will not impact the Northern or California red-legged frog in any way. Regardless, with the new information about overlap in range between the Northern red-legged frog and the California red-legged frog, and because there are tributary freshwater habitats on the site, these habitat are regarded as "suitable" for the red-legged frog, which does not infer presence only that aquatic conditions are present that potentially could support red-legged frogs.

Monk & Associates believes that a formal study (protocol-level survey) will be necessary to dismiss the potential presence of the California red-legged frog on the project site. The proposed Timber Harvest Plan and Vineyard Conversion project could result in impacts to upland habitat that provides potential dispersal habitat for California red-legged frogs. No suitable breeding habitat occurs on the project site and thus no impacts are expected to occur to red-legged frog breeding habitat. Because of the presence of suitable dispersal and aquatic habitats, impacts to the California red-legged frog are regarded as a potentially significant adverse impact. This impact could be mitigated to a level considered less than significant. Mitigation measures to offset these impacts are discussed under Item 32 in Section II.

Foothill Yellow-legged frog (*Rana boylei*) (Status: California Species of Special Concern) Inhabits small permanent streams with rocky substrates. Uses permanent pools of streams, ponds, and marshes with extensive shoreline vegetative cover. These habitats include valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral and wet meadow. Feed on aquatic and terrestrial insects and invertebrates, as well as fish, tadpoles, and smaller frogs. Insects are the primary food source of adult frogs, especially adult insects. Both aquatic and terrestrial insects are consumed. Tadpoles graze on algae and diatoms. This species of ranid is rarely found far from permanent water, even on rainy nights. Tadpoles require water for three to four months during maturation. Home range is limited to about 33 feet, in the farthest direction. Breeding and egg laying usually commences at the end of spring flooding--typically between mid-March and May. Eggs are deposited in permanent pools attached to emergent vegetation. Egg clusters average 200-300 individuals. Tadpoles hatch in about 5 days. Tadpoles transform in three to four months. Garter snakes, fish and bullfrogs are the primary predators of this frog.

Yellow-legged frogs have been detected within the watercourses adjacent to the plan area. Habitat for yellow-legged frogs does not exist on the conversion THP area as all watercourses have been excluded and provided with no operation buffer zones. The watercourse protection measures stated in the plan are sufficient to protect the habitat for this species.

Tailed frog (*Ascaphus truei*): (Status: Federal Species of Concern and a California Species of Special Concern) This species is restricted to perennial montane streams in steep-walled valleys with dense vegetation. Permanent water is critical and individuals are rarely found more than 40 ft from streams. Although considered uncommon, experienced observation reveals abundant populations in suitable habitat. Preferred habitat includes montane hardwood-conifer, redwood, Douglas-fir and ponderosa pine forests with perennial streams in steep-walled, densely-vegetated valleys. Adult frogs consume a wide array of prey, taken along stream banks and in the water. Aquatic and terrestrial insects (larval and adult), spiders and snails are all consumed. Tadpoles derive their energy by grazing diatoms on submerged rocks; small quantities of filamentous algae are also consumed. Conifer pollen is consumed in large quantities when available. Cover is sought under submerged rocks and logs in the stream, or under similar objects close to the stream. Tadpoles require cool stream temperatures (15^oC or less). Tadpoles require rocks around 2½ inches in diameter to which they attach themselves via a large oral sucker; turbulent water is preferred to smooth, swiftly flowing water. The breeding period typically occurs in the early fall with the eggs being laid during the following summer. Eggs hatch in about 1 month with aquatic larvae requiring 2 to 3 years to fully transform. Metamorphosis usually takes place in the fall.

There are no known tailed frogs within the assessment area. The watercourse protection measures stated in the plan are sufficient to protect the habitat for this species.

Reptiles

Northwestern pond turtle (*Clemmys marmorata marmorata*) (Status: California and Federal Species of Special Concern) The northwestern pond turtle requires ponds, lakes, or permanent pools in streams with basking sites such as partially submerged logs, rocks, or mud banks. Normally associated with permanent or nearly permanent water in a wide variety of habitat types below 6,000 ft in elevation. Omnivorous, feed on aquatic plant material, aquatic invertebrates, fish and frogs. Eggs deposited in soil with relatively high humidity. Nesting sites typically have compact soil, with significant amounts of clay or silt. Nests are generally located on south, southwest or southeast facing exposures, with slope of 25 degrees or less. Surrounding vegetation tends to be short grasses or forbs. Nesting may occur adjacent to or in openings of forest habitat. The northwestern pond turtle inhabits a variety of habitats that contain permanent or nearly permanent water below 6,000 feet. Permanent ponds, streams, rivers, lakes and irrigation ditches provide suitable habitat. This turtle is omnivorous, feeding on aquatic plant material (pond lilies), aquatic insects, a variety of aquatic invertebrates, frogs and fish. Individuals have been known to consume carrion. Nests are constructed in sandy banks along slow-moving rivers or considerable distances from water, where suitable nesting conditions exist. Suitable conditions include soil depths equal to or in excess of 4 inches and high humidity. Three to 11 eggs are laid between March and August. The incubation period is approximately 75 days. Sexual maturity is thought to take 8 years. This is the only abundant native turtle in California.

Habitat for this species does not exist on the plan area, however it does exist within the Biological Assessment Area. The watercourse protection measures stated in the plan are sufficient to protect the habitat for this species. Operations proposed as a part of this conversion THP will not result in a significant adverse impact to the western pond turtle.

Fish

Coho salmon, (*Oncorhynchus kisutch*) is a Federally Endangered Species. Coho salmon are anadromous fish that return each year to small streams along the Pacific Coast to spawn. They spend much of their adult lives at sea but always return to the location of their birthplace to lay their eggs. Coho salmon are riffle spawners that typically utilize smaller streams and gravel. Coho Salmon are anadromous salmonids that require access to stream migration, cold, clean, well oxygenated water and prefer the cover of overhanging vegetation, undercut banks, submerged vegetation, rocks, and logs and deep water. Coho typically initiate upstream migration between late October and mid-February. Coho, as a rule, spawn in smaller tributaries than

Chinook salmon. Preferred temperatures to Coho are as follows: Spawning migration 4.0 – 14.0°C (40.0 – 58.0°F), Rearing 7.2 – 16.7°C (45.0 – 62.0°F). Redds are laid in gravel that range in size from 1.3 – 10.2 cm in diameter; intergravel mortality occurs when fine sediments exceed 13% of the substrate composition. Embryos hatch after 8 to 12 weeks of incubation. Coho migrate to the ocean at age one and return to fresh water to spawn after 2 to 3 years. While the plan area is not within a "Watershed with Coho Salmon" as defined in 14 CCR 895.1, coho are known to be present in the Gualala River Basin, but are not expected to be negatively impacted.

Steelhead (*Oncorhynchus mykiss irideus*) is listed as threatened under the Endangered Species Act. The proposed timber harvest plan is located within the Northern California ESU for Steelhead. Summer steelhead ascend spawning watercourses in the spring, and hold in deep pools until the fall, when they spawn. The effects of timber harvesting concerning this species are elevated water temperatures and sedimentation of spawning gravels. Steelhead enter river systems during spring and fall, when water levels are sufficient to permit upstream migration. Steelhead mortality at the different life stages are closely affiliated with water temperatures. Preferred temperatures for different stages are as follows: Spawning migration 3.9 - 9.4°C (39 – 49°F), Egg development 10.0°C (56°F), Rearing 10.0 – 13.0°C (50 - 56°F). Steelhead prefer to spawn in gravels 0.6 – 10.2 cm in diameter, with eggs developing in approximately 31 days. When fine sediments exceed 13% of the substrate composition, intergravel mortality can occur. Juvenile steelhead spend 1 to 3 years in fresh water habitats before migrating to the ocean. They typically spend 2 years in the ocean before spawning. Although summer and winter steelhead use the same spawning gravels, they are genetically distinct and do not interbreed. Steelhead can utilize smaller tributaries and smaller sized gravels (2-3 in. in diameter) for spawning. Steelhead are known to be present in Buckeye Creek and the Wheatfield Fork of the Gualala River, but are not expected to be negatively impacted.

Chinook (*Oncorhynchus tshawytscha*) is listed as threatened under the Endangered Species Act. The proposed timber harvest plan is located within the California Coastal ESU for Chinook. Sustained water temperatures greater than 80 degrees Fahrenheit are fatal for adult salmon, which will migrate into the headwaters of smaller class I waters to spawn when water is sufficient and debris dams do not prevent access. Chinook salmon are riffle spawners and typically construct redds near the head of riffles in gravel 6 inches or less in diameter. Ideal temperatures for spawning occur between 41-58 degrees Fahrenheit. Chinook salmon prefer to spawn in the main stem of rivers or larger tributaries, but will come further up watercourses depending on the stream flow in any given year. There is no conclusive evidence that Chinook salmon have ever existed in the Wheatfield Fork of the Gualala River or Buckeye Creek. However, there is no reason that Chinook Salmon would not utilize habitat provided by the Wheatfield Fork of the Gualala River or Buckeye Creek. If there is potential Chinook habitat in the Wheatfield Fork of the Gualala River or Buckeye Creek, as is the case for steelhead, the species is not expected to be negatively impacted.

Gualala Roach (*Lavinia symmetricus parvipinnis*) is listed as a Department of Fish and Game Special Concern Species. As its name would indicate, this species is known only to exist within the Gualala River. Roach are warm water adapted species and can survive in water temperatures up to 95 °F. The increased water temperatures associated with loss of riparian vegetation and stream aggradation in the Gualala River basin have favored roach over salmonids. However, as riparian areas continue to recover in future decades and the river cools, it is likely that the

Gualala Roach will decrease in abundance in the Gualala River Watershed. This trend has been documented in stream surveys conducted by Fox and Quinn; Ambrosius and Pomeroy; Primbs and Fox in the North Fork of Buckeye Creek. The proposed timberland conversion will not result in an adverse impact to Gualala Roach due to the fact that there will be no timber operations within the WLPZs and EEZs on watercourses adjacent to the timberland conversion areas.

Impacts to all fish species that occur or have habitat located within the assessment area will be minimal. No timber operations will occur within the WLPZs on watercourses adjacent to the timberland conversion areas, which will result in a buffer that provides shade canopy for cooler water temperatures and acts as a trap to reduce sediment inputs. In addition, an Erosion Control Plan has been prepared, which will ensure sedimentation of the watercourses is minimized and a hydrological assessment has been conducted in order to ensure that the beneficial uses of water are not adversely impacted by the proposed operations. For a further discussion of the impact to fisheries resources, please see Chapters 3.4 and 3.7 of the project EIR.

Insects

Behren's silverspot butterfly (*Speyeria zerene behrensii*) is a federally listed endangered species. The butterfly does not have a State status. The Behren's silverspot butterfly is a coastal subspecies of the Zerene silverspot (*Speyeria zerene*), a member of the brush-foot family (Nymphalidae). The Zerene silverspot has six recognized subspecies distributed in northern California, Oregon, and Washington. All of these subspecies occupy restricted habitat types near the coast, and have been seriously affected by human activities. The U.S. Fish and Wildlife Service listed the Behren's silverspot butterfly as an endangered species on December 5, 1997. Critical habitat has not been designated for this species.

The Behren's silverspot butterfly is a medium-sized butterfly with a wingspan of approximately 5.5 centimeters (2.2 inches). The upper surfaces are golden brown with numerous black spots and lines. Wing undersides are brown, orange-brown, and tan with black lines and distinctive silver and black spots. Basal areas of the wings and body are densely pubescent (covered with short, soft hairs).

This butterfly inhabits coastal terrace prairie habitat. Although formal studies have not been conducted on the Behren's silverspot butterfly, the butterfly's life cycle is likely the same as or very similar to that of the closely related Oregon silverspot butterfly (*Speyeria zerene hippolyta*). Studies conducted on the Oregon silverspot butterfly (McCorkle 1980; McCorkle and Hammond 1988) found that females lay their eggs in the debris and dried stems of the larval food plant, the early blue violet (*Viola adunca*). However, other violets (*Viola* spp.) are likely used as well.

The current distribution of the Behren's silverspot butterfly is a single extant site on private land near Point Arena, Mendocino County, California. Behren's silverspot butterfly was historically known from six locations, which extended from the vicinity of the City of Mendocino, Mendocino County, south to the area of Salt Point State Park, Sonoma County.