

Dixie National Forest 2004 Monitoring Report

Wildlife and Fish

Management Indicators - northern goshawk, common flicker, mule deer and rocky mountain elk

Methods used for northern goshawk and common flicker:

The Forest Plan prescribes using nest surveys for goshawks, variable strip transects for goshawks and flickers, and sighting records of reliable persons.

In 2002, a method for surveying flickers was developed using specialist knowledge and previous woodpecker survey protocol. For each area, a line transect was surveyed to determine flicker numbers in that area. In general, there were four call stations about 0.2 miles apart along each transect. The length of transects and distance between call stations varied according to habitat. At each call station, a flicker cassette tape was played in the four cardinal directions from a caller for a total of 8 minutes. Both audio and visual detections were recorded. Temperature range, wind speed range, precipitation, and total survey time were recorded for each transect. In addition to flickers, any identifiable bird detected was recorded. A 0.1 mile buffer around each transect was used to calculate the number of acres surveyed.

The prescribed monitoring method for goshawk was used in FY2004. Visits were made to known nest sites to monitor for goshawk nest activity. At each known nest site, the following data were recorded: monitor time, nest tree type, period (courtship/nestling/incubation/fledgling/ other), forest type, nest aspect, and height of nest tree. Any other identifiable bird detected in the area was also recorded. Monitoring was conducted during the nesting/incubation period as well as the fledgling period. Nest searches were conducted approximately ½ mile around each nest site at locations where previously known nests could not be located or where the nest found was not active. Goshawk alarm calls were played from a cassette tape in goshawk territories to summon a goshawk response.

Precision/Reliability:

The Forest Plan calls for moderate precision and moderate reliability for nest surveys. It calls for low precision and moderate reliability for variable strip transects and sighting records of reliable persons.

Tolerance Limits:

The tolerance limits are as follows: ten percent total declining goshawk population size over a 3-year period; and twenty five percent decline in flicker population size over a 5-year period.

Results:

Flicker:

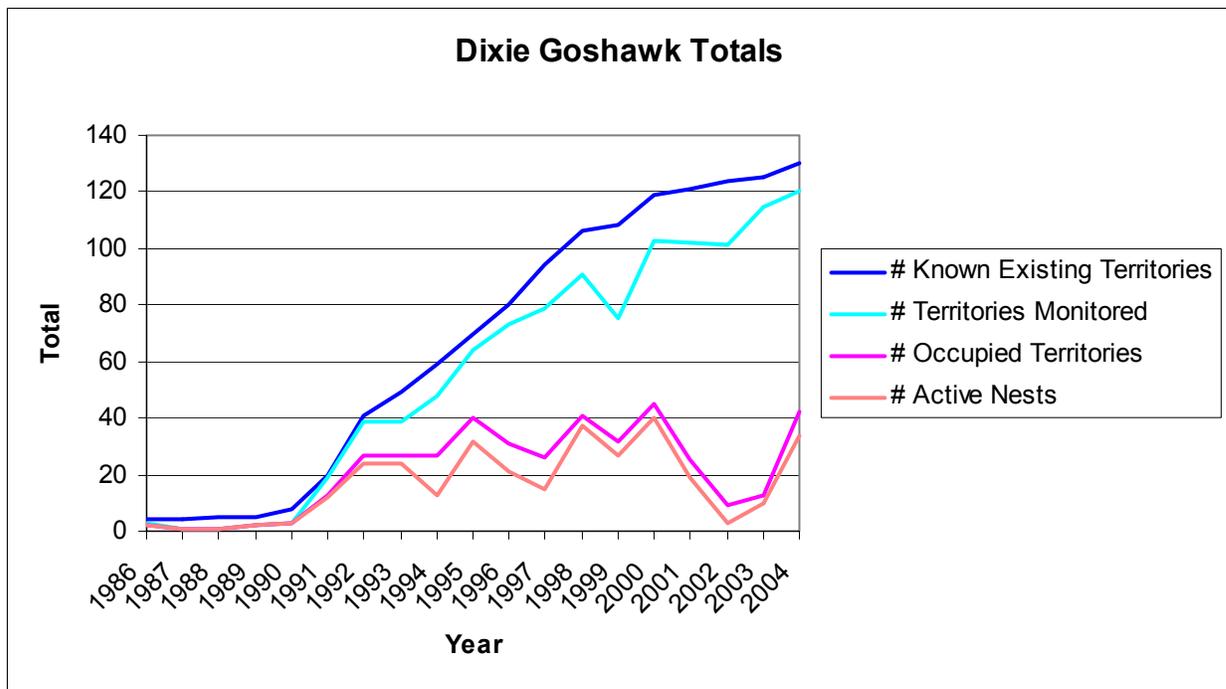
On the Dixie National Forest, a total of 110 line transects approximately 0.6 miles long were surveyed for flickers in 2004. There were 447 call stations, and the total length of transects

was 65.14 miles. The total area surveyed was 10615.00 acres. Flickers were detected on 89 of the 110 transects. A total of 329 flickers were detected in 2004 on the Dixie National Forest. This number has increased by 43 individuals since FY2003 when the number of detections was 286. The same transects were surveyed both years, at about the same time of year. In 2002, 103 of the line transects were surveyed, with 263 flicker detections recorded.

Goshawk:

Out of 130 existing goshawk territories on the Dixie National Forest, 120 were monitored in 2004. Of those monitored, 42 were occupied and 34 were confirmed active. Not all active nests were monitored to confirm fledgling production. This number has increased from 3 active nests in 2002 and 10 active nests in 2003.

**Figure 1. Dixie National Forest Goshawk Totals:
Known Existing Territories, Territories Monitored, Occupied Territories, Active Nests.**



Interpretation:

- a. **Are tolerance limits exceeded?** Flicker numbers have increased over a two-year period. Flicker numbers over a five-year period are unknown.

Occupied territories have increased by more than 4 times since 2002. The number of active nests has increased by more than 11 times since 2002.

- b. What are the implications?** These results may indicate that our present method of protecting this species is adequate. However, based on forest wide precipitation data, active goshawk territories and goshawk production are linked to precipitation. The previous decrease of goshawk numbers may largely be a result of the prolonged drought. 2003 was the fifth consecutive year of drought in the area, and many different species of wildlife were affected.

Conclusion. In my professional opinion, the increase in precipitation across the Forest has boosted the overall population numbers and distribution of many wildlife species, including goshawks and flickers. We have detected increases in the total number of flickers across a broader area. The number of active nests across the Forest has increased by greater than a factor of 3 since 2003, and fledgling numbers appear to have increased as well.

Resources Available:

Adequate funding and resources have been allocated to conduct flicker and goshawk monitoring.

Recommendation:

It is recommended that flicker and goshawk monitoring continue forest wide, and that the effect of precipitation on other wildlife is investigated.

Methods used for mule deer and rocky mountain elk:

The Forest Plan prescribes reviewing harvest and classification data collected by the Utah Division of Wildlife Resources (UDWR). In addition to reviewing these data winter range rides, aerial reconnaissance and pellet transects are also mentioned.

FY 2004 harvest and classification data was reviewed in conjunction with management plan objectives.

Precision/Reliability:

The Forest Plan calls for moderate precision and moderate reliability for reviewing harvest and classification data, winter range rides and pellet group transects.

Tolerance Limits:

The tolerance limits are as follows: Prior to reaching optimum Forest populations, a downward population trend of over 10% over 3 years. Once optimum populations are reached, a 20% total population or hard composition change over a 5-year period will cause further evaluation.

Results:

Based on the UDWR data, listed below are the elk population numbers described by hunt unit:

Hunt Unit	Mgmt. Plan Objective	Population Estimate 2001 Season	Post 2002 Season	Post 2003 Season	Post 2004 Season
Mount Dutton	1500	750	1700	1800	1625
Plateau	1500	1250	1500	1540	1700
Paunsaugunt	200	50	60	80	80
Panguitch Lake	900	720	900	1065	1125
Zion	300	250	300	300	300
Pine Valley	50	30	30	30	50

Based on the UDWR data, listed below are the deer population numbers described by hunt unit:

Hunt Unit	Mgmt. Plan Objective	Post 2001 Season	Post 2002 Season	Post 2003 Season	Post 2004 Season
Mount Dutton	2700	2400	1700	1800	1900
Plateau	25000	15600	13000	13200	15150
Paunsaugunt	6500	6700	5400	3800	3975
Panguitch Lake	8500	8800	6200	6000	8500
Zion	9000	7200	5000	5000	8300
Pine Valley	16000	15400	10000	7000	8300

Interpretation for Elk:

Mount Dutton: The target management plan objective has been established at 1500 head. As demonstrated in these data, elk population numbers have increased from the 2001 head count of 750 to 1700 in 2002, and 1800 in 2003. The Division of Wildlife Resources (Division) is mandated by law to maintain population herd objectives within the agreed upon population targets. Based on the population increases between 2001, and 2003 the Division was mandated by law to reduce numbers to comply with the management plan objective of 1500. Therefore, a large numbers of cow tags were offered in this unit to reduce numbers to comply with herd management plan objectives. This management strategy was successful; however, current population numbers remain over objective. Therefore, the 2004 post-season count declined to 1625. In order to bring this herd into compliance with the management plan objective of 1500, the removal of additional cows will remain a focus for the Division in 2005 and beyond.

Plateau: The target management plan objective has been established at 1500 head. As demonstrated in these data, elk population numbers have increased from the 2001 head count of 1250 to 1500 in 2002, 1540 in 2003, and 1700 in 2004. The Division is mandated by law to maintain population herd objectives within the agreed upon population targets. Based on

the population increases between 2001, and 2004 the Division was mandated to reduce numbers to comply with the management plan objective of 1500. Therefore, a large numbers of cow tags were offered in this unit to reduce numbers to comply with herd management plan objectives. This management strategy was successful; however, current population numbers remain over objective. In order to bring this herd into compliance with the management plan objective of 1500, the removal of additional cows will remain a focus for the Division in 2005 and beyond.

Paunsaugunt: The target management plan objective has been established at 200 head. As demonstrated in these data, elk population numbers have increased from the 2001 head count of 50 to 80 in 2002, and remained at that level through 2004. It has been the strategy of the Division and the Dixie National Forest to maintain elk numbers below the 200 head objective over the past few years due to severe drought conditions and the reduced availability of forage on the Paunsaugunt Unit. As a result, elk numbers have remained constant. However, in 2004 and 2005 vegetation has begun to increase in response to an increase in precipitation. The population is now going to be managed so that slight increases will occur. This will be accomplished in part by not offering any cow tags for the 2005 hunting season.

Panguitch Lake: The target management plan objective has been established at 900 head. As demonstrated in these data, elk population numbers have increased from the 2001 head count of 720 to 900 in 2002, 1065 in 2003, and 1125 in 2004. The Division is mandated by law to maintain population herd objectives within the agreed upon population targets. Based on the population increases between 2001, and 2004 the Division was mandated to reduce numbers to comply with the management plan objective of 900. Therefore, a large numbers of cow tags were offered in this unit to reduce numbers to comply with herd management plan objectives. This management strategy was successful; however, current population numbers remain over objective. In order to bring this herd into compliance with the management plan objective of 900, the removal of additional cows will remain a focus for the Division in 2005 and beyond.

Zion: The target management plan objective has been established at 300 head. As demonstrated in these data, elk population numbers have increased from the 2001 head count of 250 to 300 in 2002-2004. The Division is mandated by law to maintain population herd objectives within the agreed upon population targets. Based on these data the herd population is being managed at management plan objectives. Cow tags will continue to be offered in this unit to maintain the herd at objective.

Pine Valley: The target management plan objective has been established at 50 head. This population has been identified by the Division as a herd that will only be maintained as a very small population. Within this area there are number of private parcels of land that elk use will not be tolerated on. As demonstrated in these data, elk population numbers have remained the same from 2001 to 2004. Because this herd is now at objective the Division will maintain population numbers at current levels to comply with the management plan. In order to maintain this herd at the current objective the removal of additional cows will remain a focus for the Division in 2005 and beyond.

Are tolerance limits exceeded?

As demonstrated in the data presented above, 3 of the herd units on the Forest are considerably higher than objective, 2 are at objective and 1 is being managed below objective. Harvest will continue to be the management tool used by the Division to keep populations at objective.

What are the implications?

Elk will continue to expand across the Forest and will remain viable in all herd units.

Conclusion:

Elk are well distributed across the Forest and viable as they are growing where the Division allows them to expand. The Division will continue to manage elk across the Forest using hunting as the primary tool to maintain population numbers at objective.

Interpretation for Deer:

Mount Dutton: The target management plan objective has been established at 2700 head. As demonstrated in these data, deer population numbers have been on an increase from the 2002 head count of 1700. The Division is continuing to manage this herd to meet herd unit objectives. Because Southern Utah has been affected by drought condition over the past 7 years, deer populations have been declining. As a result of good precipitation last year and numerous habitat improvement projects it appears that deer numbers in this unit are starting to recover. The Division is not permitting the removal of doe's in this area in order to allow this herd to continue to grow.

Plateau:

The target management plan objective has been established at 25000 head. As demonstrated in these data, deer population numbers have increased from the 2002 head count of 13000. The Division is continuing to manage this herd to meet herd unit objectives. Although Southern Utah has been affected by drought condition over the past 7 years, this population has been increasing in size. Growth of this herd is likely due to numerous habitat improvement projects across the area. The Division is not permitting the removal of doe's in this area to allow this herd to continue to grow.

Paunsaugunt: The target management plan objective has been established at 6500 head. As demonstrated in these data, deer population numbers have increased from the 2002 head count of 5400. The Division is continuing to manage this herd to meet herd unit objectives. Because Southern Utah has been affected by drought conditions for the past 7 years, deer populations have been declining. As a result of good precipitation last year and numerous habitat improvement projects it appears that deer numbers in this unit are starting to recover. The Division is not permitting the removal of doe's in this area to allow this herd to continue to grow.

Panguitch Lake: The target management plan objective has been established at 8500 head. As demonstrated in these data, deer population numbers have increased from the 2002 head count of 6200. The Division is continuing to manage this herd to meet herd unit objectives. Because Southern Utah has been affected by drought condition over the past 7 years, deer populations have been declining. As a result of good precipitation last year and numerous habitat improvement projects it appears that deer numbers in this unit are starting to recover.

The Division is not permitting the removal of doe's in this area to allow this herd to continue to grow.

Zion: The target management plan objective has been established at 9000 head. As demonstrated in these data, deer population numbers have been on the increase from the 2002 head count of 5000. The Division is continuing to manage this herd to meet herd unit objectives. Because Southern Utah has been a drought over the past 7 years, deer populations have been declining. As a result of good precipitation last year and numerous habitat improvement projects it appears that deer numbers in this unit are starting to recover. The Division is not permitting the removal of doe's in this area to allow this herd to continue to grow.

Pine Valley: The target management plan objective has been established at 16000 head. As demonstrated in these data, deer population numbers have been well below targeted numbers for this unit. Population numbers took a sharp decline in 2003 from 10000 in 2002 to 7000 in 2003; however, in 2004 numbers have started to increase. This area contains many portions of private land within deer transitional and winter ranges. The Division is continuing to manage this herd to meet herd unit objectives. Because Southern Utah has been in a prolonged drought condition over the past 7 years, deer populations have been declining. As a result of good precipitation last year and numerous habitat improvement projects it appears that deer numbers in this unit are starting to recover. The Division is offering 75 doe tags in this unit in response to depredation issues on or adjacent to private land.

Are tolerance limits exceeded?

As demonstrated in the data presented above, all deer unit populations are on an increase from 2003. Harvest will continue to be the management tool used by the Division to keep populations at objective and to address depredation issues.

What are the implications?

Deer will continue to expand across the Forest where the Division will allow them to and will remain viable in all herd units.

Conclusion:

Deer are well distributed across the Forest and viable as they are growing where the Division allows them to expand. The Division will continue to manage deer at population objectives and use hunting as a management tool to control populations.

Resources Available:

Additional funding is needed to implement habitat improvement projects in sagebrush/steppe communities. Forest resources are being allocated, however, additional program monies should be used to address treating more shrub/steppe habitat.

Recommendation:

It is recommended that the Dixie National Forest continue to work cooperatively with the Division and other non-governmental agencies on habitat improvement projects. It is also recommended that the Forest continue to participate on the Regional Advisory Council board, which makes recommendations to the Wildlife Board in Utah, who ultimately decides herd unit objectives, management area boundaries and season limits.

Arizona willow – The condition of known Arizona willow sites has been monitored and an annual report completed. Overall, Arizona willow appears to have greater vigor than last year. Sufficient funds and resources were available to achieve these monitoring objectives. The only things needed to monitor Arizona willow are a reliable vehicle, pencil, paper, and a camera.

MSO – The 2003 USFWS survey protocol was used to survey for Mexican spotted owls. Nighttime calling was conducted generally between the hours of 2100 and 0100. No spotted owls were detected in 2004. More employees, along with necessary equipment for them, would be needed to survey the amount of habitat that needs to be surveyed on the Dixie National Forest.

Mitigation Measures Implemented to Prevent Goshawk Territory Abandonment (Goshawk Amendment Page B-3)

In 2004, two timber sale projects were selected to be review for implementation of the Goshawk Amendment Standards and Guidelines. The Blue Pine timber sale and the School Wash thinning projects were reviewed on the Cedar City Ranger District. Goshawk mitigation for these projects was built into the design criterion for these projects and monitored or checked throughout implementation. Based on monitoring information collected during inspection visits, goshawk recommendations were implemented. This information was documented on inspection forms and is located in the Timber Sale Contract Records file for each project. Based on these data, mitigation measures are being implemented during vegetation management projects to prevent territory abandonment. In addition to design criterion in the NEPA documents, mitigation language is discussed in the Biological Evaluation (BE) that adds additional support to managing for goshawks on the Forest.

Habitat Connectivity within 5th and 6th Order Watersheds.

The School Wash project on the Cedar City Ranger District was reviewed for implementation of connective corridors. Based on information collected on-site and recorded in timber sale inspection forms, the connective corridors that were identified in the planning stages of this project were and are maintained during the implementation portion of this project. Additional data collection will continue during 2005 to look at the species diversity and structural condition. Based on field reviews, the connective corridors identified by the wildlife biologist during the planning phase remain in place and may function as corridors throughout this project if wildlife choose to use them. Additional connective corridors of habitat exist in areas such as Ashdown Gorge, Box Death Hollow, and Pine Valley Wilderness areas. Areas such as the east and west slope of the Boulder and the north end of Mt. Dutton all continue to provide good connective corridors to adjacent watersheds.

Snag Habitat Maintained in Desired Spatial Arrangement.

The Blue Pine and Sidney timber sales were monitored for snags on the forest in for species diversity and numbers. In the Blue Pine area, ponderosa pine are the primary snag species. Within this area, overall snag numbers are low due to unauthorized snag removal from fuelwood gathers. As a result, snag numbers in this area are below the forest plan guideline number of 200 snags per 100 acres. This low density within the ponderosa pine type is somewhat typical on the Cedar City Ranger District; however, this situation is not represented

on other districts across the forest. This determination is based on qualitative observations and not on quantitative data.

Within the Sidney area, Engelmann spruce snags dominate the landscape and exceed the forest plan guideline number of 300 snags per 100 acres. This is primarily due to the high abundance of dead spruce across the entire spruce zone on the Dixie National Forest. The abundance of dead spruce is due to epidemic levels of spruce bark beetles that have impacted spruce across the forest. Additional monitoring is ongoing across the forest in several cover types.

Down Woody Material and Logs Maintained in Sufficient Amount, Sizes and Spatial Locations.

In 2004, down woody debris data was reviewed for the Sidney Valley Vegetation Management project. These data demonstrated that a total of 23.84 tons per acre (tons/ac) of down woody debris remained on the ground post-treatment. In addition, sufficient amounts and sizes and special distributions remained after treatment. As a brief example, 8.40 tons/ac of down woody debris in the 9-20 inch category exists, and 2.01 tons/ac in the 20 inch plus category. These data can be located in the Sidney Valley project record. Using this area as a sample, down woody debris is being managed in adequate densities and sizes. Although this sample area may be high due to the insect epidemic that impacted the live tree component, it is representative of most spruce and mixed species stands on the unit.

Grazing Management and “At Risk” Goshawk Locations.

Currently there are no goshawk territories on the Forest that have been identified as being threatened by livestock grazing; therefore, no “At Risk” areas have been delineated. Data collected by Mark Madsen in 2004 demonstrates that most of the allotments on the Forest are not in a downward trend (Madsen, Long Term Vegetation Trend Study 2004). Because an allotment can consist of several pastures, one pasture can be experiencing a downward trend and the remaining pastures in a static or even upward trend. In addition, it is important to note that a pasture within an allotment can be experiencing a downward trend, but still be in a proper functioning condition.

Bonneville Cutthroat Trout

Activities, Effects and Resources To Be Measured.

Bonneville cutthroat trout

Methods.

Electroshocking and habitat survey. The forest plan states the R-4 GAWS habitat survey will be used to assess Bonneville cutthroat trout habitat. This methodology is outdated, and R1/R4 Fish and Fish Habitat Inventory is now the standard survey method for the Forest Service Intermountain Region. Consequently, R1/R4 was the methodology that was used.

Location.

No electroshocking surveys were conducted for Bonneville cutthroat trout on the Dixie National Forest in 2004. R1/R4 Fish Habitat Inventory was conducted at Deep Creek, located on the Northeast end of the Powell Ranger District.

Variation.

10% decline in population size in any one stream in any one year.

Results.

The Utah Division of Wildlife Resources is in charge of all Bonneville cutthroat trout population surveys on the Dixie National Forest, including all electroshocking surveys. Currently they survey all known populations of Bonneville cutthroat trout on a seven year rotation. The last survey dates for known populations on the Dixie National Forest occurred in 2001 and 2002.

The Sanford Fire heavily impacted Deep Creek and its watershed in 2002. As a consequence of this fire, the Bonneville cutthroat trout population and its habitat were severely degraded. A 0.6 mile section of stream was surveyed using the R1/R4 methodology in 2004. Results from this survey show that the stream and surrounding riparian habitat is slowly recovering from the fire. However, overall fish habitat condition is still very poor and the stream is unable to support a Bonneville cutthroat trout population at this time. High water temperatures, lack of overstream shade and cover, poor pool habitat, lack of spawning habitat, lack of overwintering habitat, and poor aquatic macroinvertebrate community composition are currently contributing to the degraded fisheries habitat quality.

Interpretation.

The current monitoring effort for Bonneville cutthroat trout populations on the Dixie National Forest is adequate to assess current population and habitat trends. Furthermore, all land management actions occurring within or near known Bonneville cutthroat trout populations are being mitigated to avoid undesirable effects to the species. Current trends for the species on the Dixie National Forest are stable, with opportunities to expand the occupied habitat. This expansion will occur as previously occupied streams affected by the 2002 wildland fires recover to suitable conditions for supporting coldwater fisheries.

Monitoring Resources Available.

There are insufficient funds available to accomplish annual population and habitat inventories on all Bonneville cutthroat trout populations and streams on the Dixie National Forest. In order to achieve the level of monitoring identified in the Forest Plan (i.e. annual monitoring on all populations/streams), an increase in both seasonal personnel and equipment would be necessary.

Recommendation.

The monitoring of Bonneville cutthroat trout populations on the Dixie National forest is essential to the overall conservation of the species. The populations that exist on the forest represent the Southern most populations within the entire species range. The current level of monitoring should continue. Furthermore, the benefits of a more robust monitoring program, primarily habitat inventory and improvement, would be valuable to the conservation of the species.

Riparian Habitat

Activities, Effects and Resources To Be Measured.

Fish/Riparian Habitat

Methods.

R-4 GAWS analysis, vegetative composition and age class surveys.

R1/R4 Fish and Fish Habitat Inventory is the USFS Region 4 standard monitoring protocol for fish habitat monitoring. This is the method that is used on the Dixie NF, because it is more current than any of the methods identified in the Forest Plan.

Location.

Fish habitat inventories were conducted on three streams on the Powell Ranger District in 2004. These streams are: Cottonwood Creek, Deep Creek, and Deer Creek. Cottonwood Creek was surveyed from the top of the box canyon ("The Box") to the confluence of the North and South Forks of Cottonwood Creek. Deer Creek was surveyed from the forest boundary upstream to an unnamed tributary (a distance of approximately 0.9 miles). Deep Creek was surveyed from the forest boundary upstream to an unnamed tributary (a distance of approximately 0.6 miles).

Variation.

20% variation from specifications of Standards and Guidelines

Results.

The Sanford Fire heavily impacted Cottonwood, Deep, and Deer Creeks and their watersheds in 2002. All three streams were surveyed using the R1/R4 Fish and Fish Habitat Inventory methodology. Results from these surveys show that the streams and surrounding riparian habitats are slowly recovering from the fire. However, overall fish habitat condition is still very poor and the streams are unable to support coldwater fish populations at this time. High water temperatures, lack of overstream shade and cover, poor pool habitat, lack of spawning habitat, lack of overwintering habitat, and poor aquatic macroinvertebrate community composition are currently contributing to the degraded fisheries habitat quality. All raw data is stored on the NRIS Water database.

Interpretation.

Further evaluation is needed on the three streams monitored in 2004. It is obvious that these streams do not currently meet Forest Plan Standards for fish and riparian habitat conditions. This is a result of the impacts created by the Sanford Fire. These three streams are trending towards acceptable conditions and are expected to continue to do so. Recovery from intense wildland fires is variable in duration, and predicting rates of recovery is tenuous at best. The best course of action will be to continue with annual monitoring of these important habitats.

Monitoring Resources Available.

There are insufficient funds available to fund annual monitoring of all fish and riparian habitats on the forest. This type of monitoring is very labor intensive, and therefore very expensive. Current cost estimates for this type of monitoring are around \$1,500 per stream (assuming between 0.5-1.0 miles of stream inventoried). This cost includes data collection, data input, and analysis. It is unlikely that the Dixie National Forest would ever have the funding or personnel to carry out the prescribed level of monitoring that is being directed.

Recommendation.

This type of monitoring should continue to be used as a tool for determining current condition, project effects, trend, and recovery rates. However, it can only be applied on a selective basis where priorities are set based on expected funding, personnel, and data needs.

Habitat Effectiveness

Activities, Effects and Resources To Be Measured.

Habitat Effectiveness

Methods.

Annual road density: map, air photo. Infra and GIS data were used to prepare this report.

Location.

Inventory of the Dixie National Forest.

Variation.

10% below specifications of Standards and Guides. Forest Plan Standard and Guide for road density is 2.0 miles per square mile or less of habitat.

Results.

Using GIS data (which includes roads inventoried using GPS) the following mileages exist on the Dixie National Forest, including the Teasdale Ranger District.

Description	Miles closed	Miles open
Open classified road (maintenance level 2, 3, 4, and 5)		3,016.10
Open seasonal classified		113.29
Closed classified (maintenance level 1)	815.20	0
Unclassified		1,507.07
Open motorized Trail		454.33
Total open Road and open motorized trail		5,090.79
Total open road only		4,636.46

There are 3,070 square miles on the Dixie National Forest yielding an open road density of 1.51 miles per square mile. Because motorized trails have similar disturbance to wildlife habitat as use on open roads calculating the road and motorized trail density is also shown, which is 1.66 miles per square mile.

Interpretation.

The Forest Plan states that road densities greater than 2.0 miles per square mile decrease habitat effectiveness. The average open road and open road plus motorized trail densities on the forest are below 2.0 miles per square mile. Localized areas have road densities in excess of the average and some areas are below. Habitat effectiveness, primarily for big game, is decreased in areas where road density is above the standard and guideline.

Monitoring Resources Available.

Estimating road density is done using existing inventories and GIS data. Resources are available to conduct this monitoring.

Recommendation.

The variation causing further evaluation is stated as road densities are *below* the two miles per square mile. The intent is that higher habitat effectiveness is desired with lower road densities. Therefore, this variation should be amended to state 10% *above* standards and guidelines (Forest Plan Amendment).

Using *open* road densities for this calculation would be more meaningful for assessing habitat effectiveness because the concern is primarily the disturbance factor from use on the road. Closed roads would not reduce habitat effectiveness to the degree that open roads would. Therefore, the standard should be amended to read “open” road densities.

Trout

Activities, Effects and Resources To Be Measured.

Trout: brook, brown, rainbow, cutthroat

Methods.

Gill netting, electroshocking, creel census

Location.

Gill netting: not accomplished by forest personnel, UDWR data exists for lakes sampled in 2004.

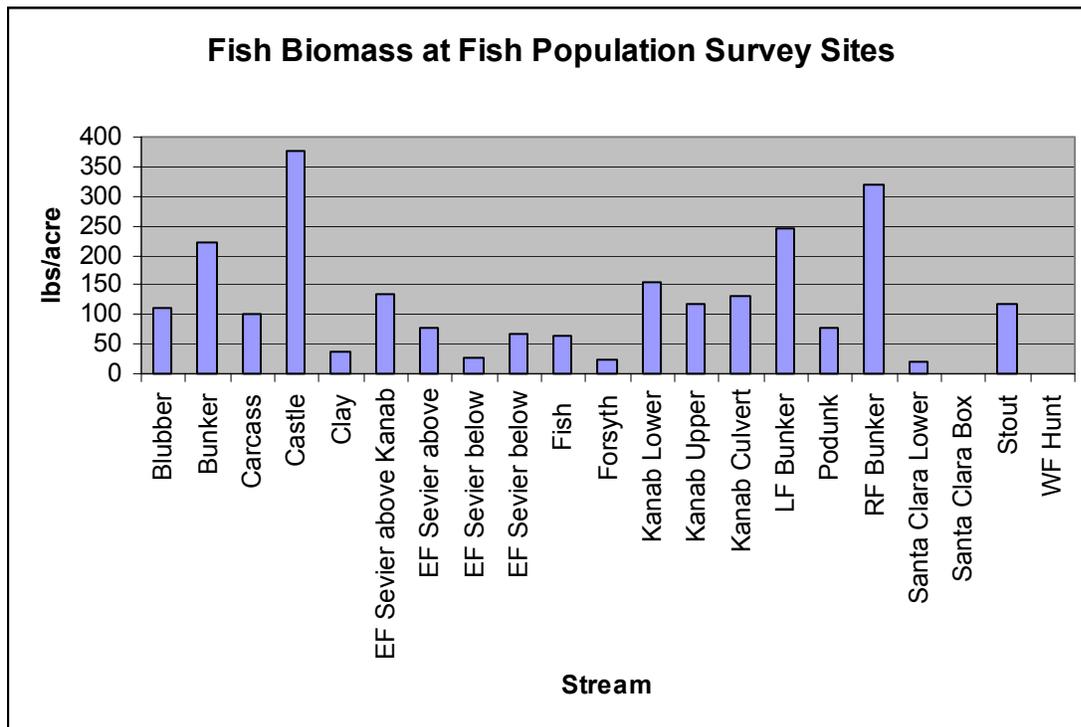
Electroshocking: Santa Clara River, Forsyth Creek, Bunker Creek, LF Bunker Creek, RF Bunker Creek, Castle Creek, Stout Canyon, East Fork Sevier River, Kanab Creek, Blubber Creek, Podunk Creek, West Fork Hunt Creek, Clay Creek, Carcass Creek, and Fish Creek.

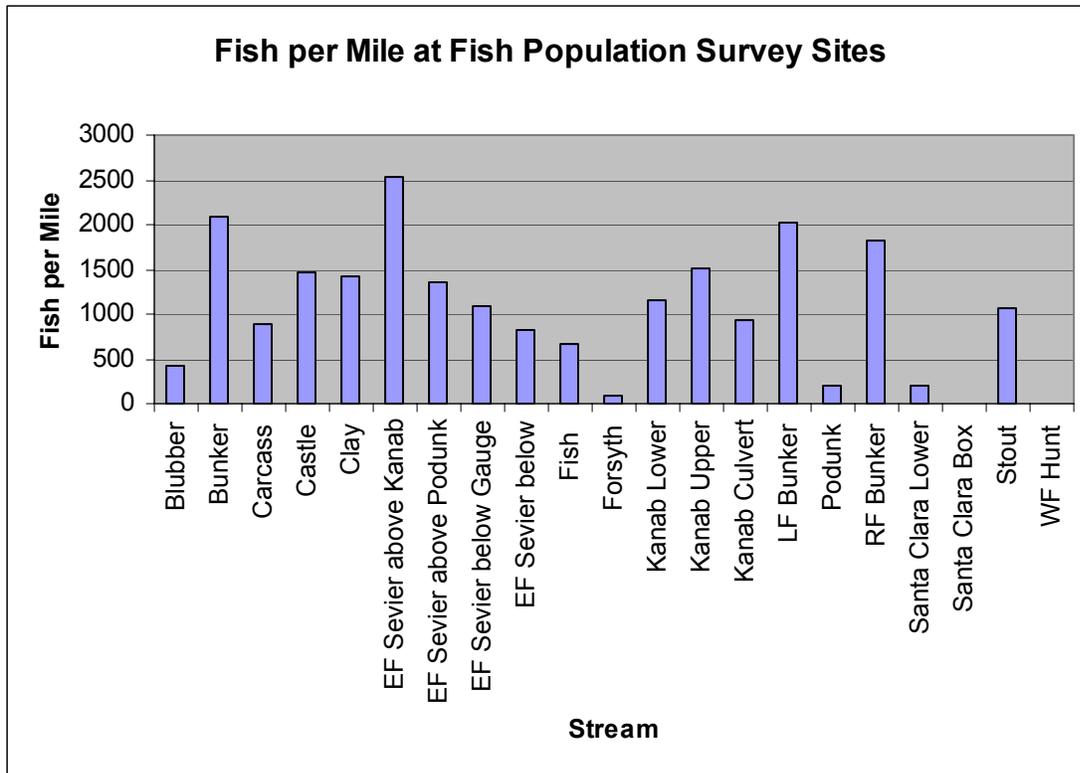
Creel census: not accomplished by forest personnel

Variation.

20% total decline in population size over a 5-year period or a major change in size or quality of catch.

Results.





All raw data is stored on the NRIS Water database.

Interpretation.

The fish population data collected during the 2004 field season is difficult to compare with the variation stated in the Forest Plan. This is due to the lack of recent fish population data on most streams on the forest. Until 2003, the Utah Division of Wildlife Resources was collecting the bulk of fisheries population data on the Dixie National Forest. Sampling locations for UDWR monitoring was determined by the UDWR with little input from the forest. For the past two years (i.e. 2003, 2004), Dixie National Forest personnel have collected fish population data at various sites across the forest, in cooperation with the UDWR. This data will allow us to compare current conditions with past and desired conditions. Further evaluation and data collection is needed to clearly define fisheries population trends across the forest.

Monitoring Resources Available.

Funding provided by the NFWF budget was sufficient to support the time of one permanent and one seasonal employee to monitor various streams from across the forest. It is unlikely that funding will ever be at a level where annual monitoring of all fish populations present on the Dixie National Forest can occur. Furthermore, this level of monitoring could result in negative impacts to small populations from mortality (intentional and inadvertent) associated with sampling method.

Recommendation.

Fish population monitoring (specifically trout population monitoring) should continue across the forest. It is reasonable to expect the level of annual monitoring to be somewhere between 10-20

streams/stations per year. This would allow the forest to revisit all major stream fisheries every 4-7 years, and thereby determine trend of these populations. The UDWR will continue to be in charge of gill net surveys of lake populations.