

# **Spatial Layers of Forest Action Plan:**

## **Availability, Updates, Problems, and Provenance**

1. 2000/2030 Development Density Data: This dataset is used in the **Development Potential (Risk)** model. This data comes from the Spatially Explicit Regional Growth Model (SeRGOM). This model was produced by Dr. Dave Theobald as a part of the USFS Forest on the Edge study (Stein et al., 2005). The original FTP site where the data was downloaded is no longer available for access.

Dr. Theobald currently has a project to update this dataset which should be ready next year (end of 2016) and the ICLUS/SERGoM product was updated in 2010:

<http://cfpub.epa.gov/ncea/global/recordisplay.cfm?deid=205305>.

2. 305b Impaired Watershed: This dataset is used in the **Water Quality and Supply** model. This data was created by the New Mexico Environment Department as part of required reporting to the EPA. This list of watersheds is based on HUC-8 watersheds for the 2014-2016 list of impaired watersheds. The dataset used in the FAP uses the 2008 report watersheds and utilizes the HUC-12 watersheds. The 2014-2016 report is currently in its final draft, but has not yet been approved by the EPA. Spatial data layers may be available from the NMED.

This layer was last updated on April 30, 2014 for the draft currently waiting for approval from the EPA.

3. Accessibility: This dataset is used in the **Economic Potential** model. This dataset was created to show the accessibility of logging potential for the economic development model. This essentially uses a digital elevation model to create a slope analysis, then categorizes the output in a Boolean (yes or no, 1 or 0) value. Areas with a slope of 40% or less are given a score of 5, all other areas are a zero. This is because it is considered too dangerous and tedious to log in areas with a slope greater than 40%.

This dataset can be updated if there is new data available for the digital elevation model. Currently the statewide DEM available from RGIS is from 2009. This DEM is at a 30 meter resolution. There are also 10m resolution DEMs available from RGIS, but they would need to be mosaicked together. This process can be extremely time consuming and the resulting file can be VERY large. The benefit from updating this sub-model

would not be worth the effort required. There has not been enough change to the landscape to warrant revisiting this dataset and a change in resolution will not provide useful analysis to the assessment.

4. Aquifer Recharge: This dataset is used in the **Water Quality and Supply** model. This information uses a few inputs. There is rainfall data from PRISM at Oregon State. The dataset used in this model was the composite of rainfall data from 1951-2006. There have been updates of this dataset and they are available on the PRISM website. The MRLC land cover data that was used to classify the impervious land cover types is the NLCD dataset (30m resolution, 2011 vintage). The data was put through the "Chatudevi Formula" ( $R = 2.0(P-15)^{0.4}$ ). The data that was output from this analysis was compared to the OSE groundwater elevation dataset by the technical team to see if the output of aquifer recharge matched up with areas of high groundwater elevation.

This dataset could have the newer PRISM precipitation data input into it, but the statistical weight of just 5 years on a 55 year dataset may not make much of a noticeable difference. The NLCD dataset that was used (2001) to show impervious layers may have captured more of the development that has taken place since the original dataset was used, and therefore may make a change in the amount of aquifer recharge in areas where development has occurred since the original model. This change would probably be noticeable mostly on and around urban areas, and may not have a huge effect on a watershed scale dataset. The reclassification of the NLCD dataset was done in house at TNC and the Division will need to mimic their method to provide continuity between the original model and the proposed updated model.

5. Aquifer Sensitivity: This dataset is used in the **Water Quality and Supply** model. This model was created by the Water Resources Research Institute (WRRI). It follows the DRASTIC model (D= Depth to water, R= Net Recharge, A= Aquifer Media, S= Soil Media, T= Topography, I= Impact of the Vadose Zone, C= Hydraulic Conductivity). This model essentially highlights areas where based on these factors the migration of contaminants poses a danger to the aquifer.

Todd Howell contacted the WRRI and talked with Bob Sabie. Steve Walker who was in charge of the GIS Coordination at WRRI has since left. As far as Bob knew this dataset had not been updated. Bob explained that this dataset is the result of local data being plugged into the DRASTIC model which is actually from the EPA. No one at WRRI knew the original date that the statewide model was run. Since none of the variables could have changed that much, the data used in this model, and the scale of the model itself makes this data good for the foreseeable future.

6. Availability of Woody Biomass Products: This dataset is used in the **Economic Potential** model. This model is part of the economic potential information and is meant to show the availability of woody biomass products other than sawmill grade timber. This dataset is created using the National Insect and Disease Risk Map information on Basal Area, and Quadratic Mean Diameter. This information has been updated, and is available online from the FHTET team. Frank Krist the Program manager for GIS and Spatial Analysis has made this data available to us.

This model shows areas with high basal area density and a quadratic mean diameter 0-10 inches. This is an easily updated model, and the changes could be significant based on fire activity, logging, and insect and disease activity on the forests.

Add tie-back to FIA ARRA data collection.

7. Availability of Timber: This dataset is used in the **Economic Potential** model. This dataset is meant to show the availability of sawmill grade timber. This dataset relies on the same information used in the availability of woody biomass model but with different classification parameters. The information for Basal Area and Quadratic Mean Diameter from FHTET/NIDRM are readily available. Add FIA dataset.
8. Basal Area Loss: This dataset is used in the **Economic Potential** model. This information is part of the data that is provided by NIDRM and is readily available. We can download all the information at once. Since this data is kept up every year, this data could be significantly different year to year and should be updated if we can.
9. Cougar Corridors: This dataset is used in the Least Cost Path analysis that was used in the **Green Infrastructure** model. The information was furnished to us by Kurt Menke at Birds Eye View GIS. Kurt Menke reports there have been no updates made to this dataset. The Division will be redesigning the approach for creating the Green Infrastructure model.
10. Crown Fire Potential: This dataset is used in the **Wildfire Risk** model. This file was created by The Nature Conservancy. They utilized tools to create this that are available to us here at NMSF. Crown Fire Potential is calculated and output by the FlamMap tool. The inputs to this tool are from LANDFIRE and include (elevation, slope, aspect, canopy closure, fuel model 40, canopy base height, and canopy bulk density). This model also utilized RAWs weather station data for NM. The LANDFIRE data set is scheduled to incorporate recent FIA data in 2017. This new data will be 15-20 years more current than the data used for New Mexico previously. With additional recent drought

conditions, there is a strong likelihood that this layer will change significantly from the first analysis. However, timing with the LANDFIRE program is essential for the Division's new model construction to be sure new FIA data is incorporated.

11. CWCS Key Areas: This dataset is used in the **Fish and Wildlife Habitat (Biodiversity)** model. Comprehensive Wildlife Conservation Strategy key areas were created by NMDGF. The CWCS was completed in 2006.

The CWCS is the Statewide Wildlife Action plan created by the NMDGF. This is currently in process of update, but the revision is not yet completed. Lance Tyson at NMDGF is anticipating finishing a draft by the end of 2015. They are going to do things "a little differently" in this iteration of the action plan, and Division may need to adapt the analysis accordingly. This Biodiversity model analysis needs to be significantly redesigned to insure an emphasis on plants, vegetative communities, and the interactions of wildlife on habitat. The CWCS data layers will be a useful part of this analysis, but other data on endangered plant and vegetative communities also needs to be included.

12. Distance to Use: This layer is used in the **Economic Potential** model. It utilizes the "wood\_infrastructure" layer created by New Mexico Highlands University (NMHU), and the "Transportation GDB (geodatabase)" from RGIS at University of New Mexico (UNM). The wood infrastructure layer contains sites for processing wood products, and the Transportation Geodatabase from RGIS contains rails and roads.

The wood infrastructure layer was made in cooperation with New Mexico Forest Industry Association, and it's possible that we could tap them for information to create a similar dataset if need be (excel spreadsheet with locations of processors). The transportation geodatabase at RGIS has most likely been updated as there has been more Tiger files made available since the FAP was written. I believe that we are going to have to have an actual transportation network to run any network analysis such as distances along the lines. We also may be able to update these with the E911 roads that has been created since the writing of the FAP.

Commented [SMC1]: Need to research? Ask Ann?

13. Erosion Risk: This model is used in the **Water Quality and Supply** model. It was created in-house at TNC. It was created utilizing Rainfall-Runoff Erosivity Factor and methodology created by Renard and Friedmund (1994). The input information for this model was PRISM precipitation data from Oregon State University, STATSGO soil data from NRCS, NM DEM that is kept by RGIS (statewide, 30m resolution), and the NLCD (National Land Cover Dataset) from 2001.

There are updates available for PRISM data, and NLCD data. The DEM at RGIS has not been updated, but this was discussed in the Accessibility model discussion (#3 on this list). STATSGO is from 1997 according to the metadata that is available on [water.usgs.gov/GIS/metadata/usgswrd/XML/muid.xml](http://water.usgs.gov/GIS/metadata/usgswrd/XML/muid.xml). If the PRISM data is composite, the addition of 5 years is unlikely to make a statistical difference in the data. The NLCD data was updated in 2011, and may have some differences in land cover since 2001 especially in urban areas. This is a very complicated model, and given the nature, scale, and resolution of the data an update is not necessary at this point.

However, the USGS and USFS have been working together on developing debris flow modeling to identify areas that are at risk for severe erosion following high fire severity. This new line of modeling has been done for specific regions in the state, and is not statewide at this time. Contacts for this project include Anne Tillery ([atillery@usgs.gov](mailto:atillery@usgs.gov)) and Jessica Haas (USFS RMRS).

14. Fire Regime Condition Class: This dataset is used in the **Wildfire Risk** model. LANDFIRE is working on producing new base maps in 2015 and project completion is scheduled for 2018. There has been completed updates in 2012 and those could be used for an update of the Fire Regime Condition Class. The 2020 update of the Forest Action Plan can utilize the upcoming 2018 LANDFIRE base map updates.
15. Flame Length: This dataset is used in the **Wildfire Risk** model. This is another layer that is output using FlamMap and data from LANDFIRE. Some problems were noted by the technical team in the vegetation and land cover outputs from LANDFIRE that may have been fixed in the recent updates. This layer may be worth re-analyzing with current data.
16. Forest Patch Continuity: This dataset is used in the **Fragmentation** model. It utilizes the Southwest Regional Gap Analysis Project (SWReGAP) land cover data. This data is from 2006, and there aren't any planned updates of this data at the full statewide scale. A former researcher in this project suggested there might be some small areas being updated with funding from the Sage Grouse research and protection grants. A possible alternative for this dataset could be the use of the National Land Cover Dataset that was updated in 2011 and could possibly be reclassified to match what classes were listed in the SWReGAP dataset.

This dataset also utilized the Tiger roads and rails layers from the US Census Bureau (2006). This information has been updated and, since the creation of the E911 program, this source may not be the most extensive road file for the State of New Mexico. This layer may not have complete data for the Native American reservations in NM.

The last dataset that is mentioned is a “Utilities Raster”. I have no idea where this came from, or what is in it. This is an ambiguity that we may only be able to figure out with the help of people who worked on the original version of this forest action plan.

Commented [SMC2]: Ask Anne Bradley

17. Forest Patch Size: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset.

18. Forested Species Habitat: This dataset is used in the **Fish and Wildlife Habitat (Biodiversity)** Comprehensive Wildlife Conservation Strategy key areas were created by NMDGF. The CWCS was made in 2006.

The information in this model is also in a new draft of the “wildlife action plan” (CWCS). The update is expected later this year. There is a more in depth discussion of this included on item 11 in this list.

19. Game (Hunting): This dataset was created as part of the recreation analysis in the **Economic Potential** model. This dataset used NMDGF big game management units, and Antelope management units. Both antelope and elk use the same big game management units now, and they may have been updated since the time of the original FAP. These GMU shapes are available for download from the NMDGF website.

This dataset also utilized the number of elk (2008) and antelope (2007-2008) tags that were issued for each different management unit. This is going to be easier to normalize with the same boundaries for each species now. This information is also available in table form from the NMDGF website, and will be up to date from the last calendar year.

20. Grassland Patch Continuity: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset.

21. Grassland Patch Size: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset.

22. Ignition Probability: This dataset used is part of the **Wildfire Risk** model. This dataset utilized information from USFS, NMSF, BIA, and BLM to create a layer of points of fires reported by each of those entities. They then created a density map of those to show the area of greatest probability of ignition based on previously reported fire locations.

This dataset is easy to update, and given the last 5 years of data there may be some change. This dataset has fire points from 1987-2008. With the addition of the very busy

2011 year, in addition to the other years from 2008-2014, there may be a significant statistical difference apparent in the new model.

23. Impervious Surfaces: This dataset is used in the **Water Quality and Supply** model. The dataset is a reclassification of the NLCD dataset that was done by TNC. The NLCD dataset used was the 2001 release. This could be redone based on the 2011 data, though at this scale it may not have a large effect on the output dataset given that the small amount of change in urban areas and new roads probably recorded from urban sprawl and development. Although this dataset can be redone, the lack of probable new information means this work has a low priority compared with other more productive re-analyses.
24. Insect and Disease Surveys: This dataset is part of the **Forest Health** model. The data that is used in this is from the USFS Aerial Survey data from 1987-2008. There have been an additional 6 years of data added to this since the creation of the Forest Action Plan. Tom Zegler would probably be the best source for the decision as to whether there had been a large change that we might need to capture in an update in that time.
25. Landcover that Lowers Priority (SWReGAP): This dataset was used as part of the **Green Infrastructure** model. The dataset is reclassified SWReGAP data based on the intensity of land cover and weights the LCP model based on these intensities of use. Also used in this dataset are the Tiger roads from the US Census Bureau, which have been updated since 2006.

This dataset (SWReGAP) has not been updated at the state scale since it was created, and the best possible option for substitution is the NLCD (2011). I am not sure whether or not the same reclassification could be easily done, and this dataset presented a very labor intensive data description (pg. 75 of data atlas). I think that this dataset, and the larger associated model is best left for the 10 year update of the Forest Action Plan. As mentioned early, the Green Infrastructure model approach will require a new technical advisory committee to ensure that the produced analysis provides desired output and validity.

26. NHNM Wildlife Occurrences: This dataset is used in the **Fish and Wildlife Habitat (Biodiversity)** model. The Natural Heritage New Mexico group constantly updates and administers this information. This information was given to TNC in the HUC10 resolution. The data was then made into a raster by TNC, and reclassified to show the number of species per HUC10.

This dataset has viable updates to it, but Daniela Roth may be the best person to make the assessment on the need for updating this model based on what may have been

going on with this dataset in the past 5 years. She works closely with NHHM on botanical data.

27. NM Highlands Wildlands Network Design – Corridors: This dataset is used in the **Green Infrastructure** model. It was created in 2003 as part of a report attempting to look at the landscape in terms of core habitat and areas important to animal movement. The problem identified in the data atlas is that the corridors are only loosely identified. This dataset has not been updated since the writing of the FAP according to Kim Vacariu the Western Director of The Wildlands Network.
28. NM Highlands Wildlands Network Design – Hubs: This data set is used in the **Green Infrastructure** model (probably, it's not named this directly anywhere in the data atlas). The data description of this is cut and pasted from the corridors description. It's a bit unclear what this data actually is. There are no explanations of constituent data, or processes used to create either layer from The Wildlands Project. Only known is that the original date of the report was 2003. This dataset has not been updated since the writing of the FAP according to Kim Vacariu the Western Director of The Wildlands Network.
29. NMDGF Corridors Assessment for WGA: This dataset is used in the **Green Infrastructure** model. It was created in 2007 as part of the Western Governors Association Wildlife Corridors Initiative in December 2007. It was created using expert knowledge of NMDGF biologists and the big game manager. It is assumed that this is an explanation of game corridors and habitat important to large game species (not necessarily all animals). Lance Tyson is contact for further information regarding updates and new available information.

This project was done as a pilot project in conjunction with the same type of project in Colorado. In talking with Lance Tyson at NMDGF he explained that this project was carried over from the WGA discussion into a new project called CHAT (Crucial Habitat Assessment Tool). They moved away a bit from making the emphasis on corridors to crucial habitats. This may affect the least cost path analysis, but it may not. This new dataset could possibly instead be added as part of the Hub information that weights the areas that the least cost path connects. This update would definitely benefit from a larger discussion with more stakeholders and expert opinions.

30. NMED Water Quality Risk Factors: This dataset is used in the **Water Quality and Supply** model. This information come from the NMED. They keep spatial layers of all WQR factors (petroleum tanks, hazardous waste sites, and active landfills). The data was



summarized by HUC12 watersheds by The Nature Conservancy. The data from NMED was from 2009, and the TNC summarized the data in 2009.

This dataset has been updated in different time periods. The petroleum tanks are updated weekly by NMED. The hazardous waste sites shapefile was last updated in 2012. Zac Stauber the GIS Coordinator for NMED was unsure when the last time that the active landfill shapefile was last updated. This data is relatively easy to combine and analyze and shouldn't be a big deal to update at all.

31. Non-native phreatophytes: This dataset is used in the **Economic Development** model. Just for kicks: *Phreatophyte refers to a deep-rooted plant that obtains its water from the water table or the layer of soil just above it.* I contacted Les Owen who told me that this dataset has not been updated at the state level since the FAP was written. At that time there was a big effort to compile the data from SWCDs across the state into one cohesive dataset to show areas of Salt Cedar, and similar invasive phreatophyte removal. There is the possibility to update this dataset but it would take a big effort in getting all this from the stat SWCDs.

Since Russian olive and salt cedar are not considered tally trees in the Forest Inventory and Analysis dataset, the FIA data is not helpful as a source for this information. It is possible the NRCS National Resources Inventory may be a source for tracking these species over time.

32. Outstanding Natural Rivers: This data is used in the **Green Infrastructure** model. The EPA has a program of designating outstanding natural resource waters. This was used as a high value linear feature in the least cost path analysis for the Green Infrastructure model.

This dataset is part of the deliverables to EPA. There is another draft of this information awaiting approval from the EPA, but it is currently not approved. Currently the newest update of this information is from 2012.

33. Patch Diversity: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset. This is referred to as Patch Diversity in the table list, and the heading in the write up. It is referred to as "Patch Variety" in the actual body of the explanation of the layer.

34. Patch Rarity: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset.

35. Percent Irrigated Cropland and Pasture: This dataset is used in the **Water Quality and Supply** model. It utilized the NLCD land cover dataset to select agricultural land, those

areas were then converted to shapefiles and intersected with HUC12 watersheds. This data output was used to calculate the acreage of irrigated cropland and pasture in each watershed, and figured then as a percent of total land area of the watershed.

The NLCD dataset was updated in 2011 and the data that was used for this analysis was the 2001 dataset. This is one of the models that may benefit from updating since the acreage of irrigated cropland and pasture is calculated on a smaller enumeration unit that at a statewide level like other datasets.

36. Percent normal precipitation: This dataset is used in the **Forest Health** model. The data used in this model is all precipitation data. PRISM, SWCCI, and Climate Wizard. This data is constantly updated, and the model used the years 2006-2008. It may benefit the model to update this data, as it is readily available.
37. Perennial Streams and Intermittent Streams: This dataset is used in the **Green Infrastructure** model. This dataset was derived from the USGS National Hydrography Dataset. It is updated regularly and there is new data available since the time this model was created. This was used in the Green Infrastructure model to show areas where perennial streams are located as a valuable resource to humans, and as a means of movement for wildlife.
38. Precipitation: This dataset is used in the **Economic Potential** model. This dataset was used in the Rangeland Productivity sub-model. It was used to weight show areas that had the highest rainfall and were overlaid with the SWReGAP dataset that was reclassified by Les Owen at NMDA to show areas of good rangeland productivity. These areas are shown to be areas that would have high regrowth due to the rainfall.

This dataset is sourced from the National Atlas, but the URL that is listed contains "prism" so this may be PRISM data. This dataset can be updated, but the overlay that it is part of may have to be redone to keep continuity of temporal resolution. Which means it needs the expert reclass done by Les Owen. Since SWReGAP has not been updated, there is a possibility of recreating the same type of layer utilizing the NLCD data instead.

39. Priority Water Quality Watersheds: This dataset is used in the **Water Quality and Supply** model. The dataset was provided by NMED. This dataset is another part of the deliverables to the EPA as part of the Clean Water Act.

This dataset was updated and approved by the EPA last in 2012. There is a new draft currently awaiting approval from the EPA so updating this model should wait for the new dataset that comes from the 2014-2016 report.

40. Public Drinking Supply Sources: This dataset is used in the **Water Quality and Supply** model. The dataset was provided by NMED. Due to sensitivity issue, this data was summarized by HUC 12 Watersheds by NMED for the last assessment. There may be an opportunity to access this data for the next assessment using security measures that protect the information, but allow for use to help prioritize treatment areas.

This dataset is constantly updated at NMED. The last update that was applied to the dataset was on May 5, 2015.

41. Rare Plant Occurrences: This dataset is used in the **Fish and Wildlife Habitat (Biodiversity)** model. The data comes from Natural Heritage New Mexico and is the occurrences of rare plants that is overlaid with HUC10 watersheds. Then classified the HUC10 watersheds based on the number of rare plant occurrences per watershed. The NHHM keeps this dataset updated.

This dataset has viable updates to it, but Daniela Roth may be the best person to make the assessment on the need for updating this model based on what may have been going on with this dataset in the past 5 years. She works closely with NHHM on botanical data.

42. Rate of Spread: This dataset is used in the **Wildfire Risk** model. The dataset was created using FlamMap, and utilizing data from the LANDFIRE dataset. The national LANDFIRE dataset has updates that were made in 2012 with more scheduled updates set to start this year, and projected to be completed by 2018. The five year update now may benefit from the updated 2012 dataset. However, the complete revamp of the base datasets may be really significant for the 10 year rewrite. We need to closer inspect and validate what changes and updates were made and to what datasets for the 2012 updates.

43. Riparian Patch Continuity: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset.

44. Riparian Patch Size: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset.

45. Roads and Railroads: This dataset is used in the **Economic Potential** model. The data atlas calls this dataset the "Transportation GDB" from RGIS. I was unable to locate that dataset in the RGIS data clearing house. There is however the new census data from 2010 that is available, which is an update on the 2006 data that was utilized on the previous write up. There is also a new E911 roads dataset that was done for the state and is a really good dataset of roads outside of Otero County, and the Native American reservations which have chosen to not participate.

The one consideration is that this model may have used the Roads and Rails as a road network which is different than just a shapefile. It has an intelligence input into it to make it possible to query distances along the lines. Since this was used in the “Distance to Use” map. It may be that they used a special transportation network GDB available from RGIS. If this model needs to be redone, the newest vintage of transportation network data available from RGIS should be utilized.

46. Scenic Byways: This dataset is used in the **Economic Potential** model. This data was used in the Recreation sub-model. The data was provided the National Scenic Byways Program. There was a new scenic byway designated in May of 2015 and will be added to this dataset. Aaron Detter at NMDOT is the contact for the NM Scenic Byways Program.
47. Shrub/Scrub Patch Continuity: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset.
48. Shrub/Scrub Patch Size: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset.
49. Species Specific Crucial Habitat (NMDGF/WGA): This dataset is used in the **Fish and Wildlife Habitat (Biodiversity)** model. The dataset was provided by the NMDGF and was part of the report done for the Western Governors Association in 2007.

This dataset was also carried over from the WGA report made in 2007 to the new CHAT (Critical Habitat Assessment Tool) created by the WGA program. New information may be available for this, they are however outputting slightly different data than they used to so we may have to identify a new shapefile or spatial data layer that may be able to stand in for this information. This process should probably be undertaken with input from collaborators and partners as well as expert opinions.

50. Stand Density Index: This dataset is used in the **Forest Health** model. This dataset is from the National Insect and Disease Risk Map. It is part of the general data that is updated every year. There is new information available from FHTET NIDRM, and Frank Krist the director of this program has been in contact and happy to provide information. This information is easy to get and the analysis used to make this model is relatively simple, this model can be updated and it should be considered for update.
51. SWReGAP Landcover: This dataset is used in the **Green Infrastructure** model as it is listed in the Data Layers Used list. This dataset is used in many of the models and sub-models as the land cover dataset of choice. This dataset was created in 2004, using data from 1999-2001 from Landsat ETM+ imagery, as well as a DEM derived datasets. The

NM dataset contains 90 different cover types. This data came from a 5 state cooperative project that cost 5 million dollars to complete. There are currently no updates for this data, but there was one mention of new projects in discussion for 2015.

Todd Howell contacted Scott Shrader who was on the SWReGAP original project, but was unable thus far to get in contact with Ken Boykin. This project has not had a statewide update made to it, but has apparently had some small updates made to it with Sage Grouse grant money as new analyses were made. If this layer needs updated, NLCD data that may be able to stand in for this dataset.

52. SWReGAP Landcover (Rangeland Productivity): This dataset is used in the **Economic Potential** model. This dataset is a reclassified version of the SWReGAP that shows areas that are the best for rangeland productivity. The original version was done by Les Owen at NMDA/NMSU, with oversight from the FAP technical committee for this model. Input needed to update this dataset include 1: the professional input of Les Owen to keep the continuity of data preferably, or 2: An updated version of the SWReGAP data or a comparable resolution/classification land cover dataset to have for Les Owen to use.
53. SWReGAP Stewardship: This dataset is used in the **Green Infrastructure** model. This dataset is a subset of the SWReGAP data. They just exported the layers with a code “3” in the SWReGAP dataset. This subset is areas that “An area having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low-intensity type (e.g., logging) or localized intense type (e.g., mining). It also confers protection to federally listed endangered and threatened species throughout the area.” Since there aren’t any confirmed updates to the statewide dataset of the SWReGAP data this dataset isn’t updated for now. There may be some surrogate/comparable dataset which could provide this same type of data or from which this same type of data could be extrapolated... more research is needed.
54. SWReGAP Stewardship – GAP Status: This dataset is used in the **Green Infrastructure** model. This dataset is the complete information set from the previous point. Instead of just showing the areas that have a stewardship code of “3” it has the areas of “1” and “2”. The descriptions of these codes is on page 67 of the Data Atlas.
55. T&E Spp Habitat: This dataset is used in the **Fish and Wildlife Habitat (Biodiversity)** model. This information was made by the Center for Applied Spatial ecology with the New Mexico Cooperative Fish and Wildlife Research Unit at New Mexico State University. The dataset was made by identifying possible areas for habitat for threatened and endangered species in New Mexico utilizing the SWReGAP data. The Nature Conservancy “combined” the potential habitat layer in 2009.

This data is based on the SWReGAP data and used the expert opinion of the staff at the CASE and NMCFWRU at NMSU. An update of this dataset will require the input of a new technical committee of professionals familiar the issue.

56. TNC Conservation Areas: This dataset is used in the **Fish and Wildlife Habitat (Biodiversity)** model. This dataset was created by The Nature Conservancy created a layer of over 200 aquatic and terrestrial areas that are the “best remaining areas to conserve”. This layer comes from one of the seven eco regional assessments done by TNC from 1999-2007.

Steve Bassett, TNC-Santa Fe, said that this dataset has not been updated to the best of his knowledge, but that he would continue asking around and if he found anyone who had any different knowledge. Currently there are no updates for this dataset.

57. TNC Fish Atlas: This dataset is used in the **Fish and Wildlife Habitat (Biodiversity)** model. This dataset was created by TNC in 2007 and utilizes data from Natural Heritage New Mexico, and the National Hydrology Dataset at the 1:100,000 scale (USGS). The Atlas represents fish occurrence from 1975 to 2005 of 26 native fish species in New Mexico. This data is actually a raster layer created from “the Fish Atlas” and was created in 2009. Steve Bassett at TNC in Santa Fe was certain that this dataset had not been updated since it was created in 2009.

58. TNC Rangeland Ecosystem Assessment: This dataset is used in the **Green Infrastructure** model. This dataset is based on the NRCS “ecological site descriptions” it is focused on public rangelands managed by the BLM. The format that the data is in in the report was created by The Nature Conservancy in 2009. TNC or NRCS might be contacted to see if this data has been updated.

59. Un-fragmented Natural Land cover (SWReGAP/TIGER): This dataset is used in the **Green Infrastructure** model. They used the SWReGAP land cover dataset, removed all of the paved roads included in the TIGER roads dataset (2006) and measured the remaining land area. The SWReGAP has not been updated but the TIGER dataset has been.

60. US Census 2000 Tiger – Roads: This dataset is used in the **Green Infrastructure** model. This dataset is used as an input for the least cost path analysis. This dataset was updated with the last census data output.

61. Visitation: This dataset is used in the **Economic Potential** Recreation sub-model. This data contains actual visitation numbers for New Mexico State Parks, and National Forest Units. National Parks and Monuments, Wildlife Refuges, and BLM lands were all given values not based on actual visitation numbers because that data was not available for

them. National Parks and Monuments were given a 5. Wildlife refuges were given a 4 except Bosque Del Apache that was given a 5. BLM land was split into two classes, within 25 miles of an urban center and not within 25 miles of an urban center. Those classes were given 3 and 2 value respectively.

62. Watershed with Specific Water Quality Impaired/Impacted Streams: This dataset is used in the **Water Quality and Supply** model. This dataset is provided by the New Mexico Environment Department.

This data is also a subset of the deliverables made to the EPA as part of the NMED compliance requirements for the Clean Water Act. The last update of this data was completed and approved by the EPA in 2012. The next draft is currently complete and awaiting approval. Updates to this model should wait until the data from the 2014-2016 report to be released.

63. Wildland Urban Interface (WUI): This dataset is used in the **Wildfire Risk** model. This dataset is the combination of two different datasets that was done in house at TNC. The first layer was downloaded by USFS/ SILVIS Lab, and was combined with the WUI shapefiles provided by the CWPPs from New Mexico State Forestry.

The data from the SILVIS was downloaded in 2009, and that data was updated in 2010, so there is new data available from them. A majority of the CWPPs have recent updates with new shapefiles. The SILVIS data is available for download from their website.

64. Woodland Patch Continuity: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset.

65. Woodland Patch Size: This dataset is part of the **Fragmentation** model and the discussion on #16 covers the same datasets and concerns as apply to this dataset.

66. Working Forests: This dataset is used in the **Economic Development** model. This dataset was made from data in the "OSE Administrative Database" and USDA FS Inventoried Roadless areas.

The last update of the USDA FS Inventoried Roadless Areas on RGIS at UNM was done in 2009. So this data has not been updated since the FAP was written.