

Tay Forest District

Glenisla

Forest Design Plan

Approval date: 09/03/2012

Plan Reference No: 033/T/G/11 (11)

Plan Approval Date: 09/03/2012

Plan Expiry Date: 09/03/2022

We manage Scotland's National Forest Estate to the United Kingdom Woodland Assurance Standard – the standard endorsed in the UK by the international Forest Stewardship Council® and the Programme for the Endorsement of Forest Certification. We are independently audited.

Our land management plans bring together key information, enable us to evaluate options and plan responsibly for the future. We welcome comments on these plans at any time.

22/10/2012





#### CSM 6 Appendix 1b

# FOREST ENTERPRISE - Application for Forest Design Plan Approvals in Scotland

Forest Enterprise - Property

Forest District:	Tay Forest District
Woodland or property name:	Glenisla
Nearest town, village or locality:	Kirkton of Glenisla
OS Grid reference:	NO231652
Local Authority district/unitary Authority:	Angus Council

Areas for approval

	Conifer	Broadleaf
Clear felling	180 Ha	0 Ha
Selective felling	384 Ha	0 Ha
Restocking	84 Ha	40 Ha
New planting (complete appendix 4)	0	0

- 1. I apply for Forest Design Plan approval\*/amendment approval\* for the property described above and in the enclosed Forest Design Plan.
- 2. \* I apply for an opinion under the terms of the Environmental Impact Assessment (Forestry) (Scotland) Regulations 1999 for afforestation\* / deforestation\*/ roads\*/ quarries\* as detailed in my application.
- 3. I confirm that the initial scoping of the plan was carried out with FC staff on

29/7/11

- 4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.
- 5. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included.
- 6. I confirm that consultation and scoping has been carried out with all relevant stakeholders over the content of the of the design plan. Consideration of all of the issues raised by stakeholders has been included in the process of plan preparation and the outcome recorded on the attached consultation record. I confirm that we have informed all stakeholders about the extent to which we have been able to address their concerns and, where it has not been possible to fully address their concerns, we have reminded them of the opportunity to make further comment during the public consultation process.

7. i underta	ake to obtain any permissions necessary	for the implementation of the approved Plan.
Signed	Forest District Manager	Signed Conservator
District		Conservancy
Date	e	Date of Approval

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## Summary of proposals

This design plan sets out the proposals for the future management and re-structuring of Glenisla forest.

The main points of note are:

- To slow down the rate of clearfell in order to create more age diversity and so the area proposed for felling is 250 ha as opposed to the 400ha planned during the last 10 years.
- Increase the proportion of broadleaves along the riparian zone and in areas unsuitable for productive conifers
- Continue to produce high value timber. This will be mostly Sitka spruce, but also European/hybrid larch on the better soils and thinnable sites and Scots pine of Glen Tanar and Rannoch origin.
- Increase the amount of early thinning to encourage longer term stability.

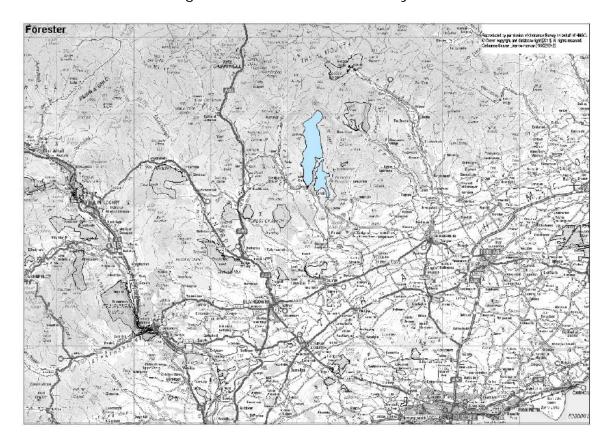
## 1.0 Introduction:

### 1.1 Setting and context

Glenisla forest is situated on the southern edge of the Cairngorms. The forest may appear to be misnamed, as on the map 'Glenisla' is the glen running to the west and south of the forest between Glen Shee, Prosen and Clova. However Glenisla is now used as a generic term to include the minor glens of Finlet, Markie, Damff and Taitney.

The forest area is 2064 ha, with 70% of the area currently planted. Planting began at Glenisla Forest in the 1949 and during the 1950's the main species planted were Scots pine and larch. During the 1960's Sitka became more popular, but Scots pine and larch remained the main species choice. After 1970 Sitka Spruce became the species of choice. Restructuring and restocking started in 1993 and these younger plantations now account for 20% of the forest. Thinning progress has been patchy to date and does not reflect the potential.

There are no statutory designations within the forest, but the north-eastern edge marches with the Cairngorms National Park boundary.



### 1.2 History of plan

Glenisla is the subject of an existing forest plan: T/G/00-117 signed on 27/02/2001. (The plan was granted an extension to 30/9/2011).

### 1.3 Planning Context

The management of the Forestry Commission Scotland's national forest estate is guided by Scottish Forestry Strategy (SFS) 2006, which sets out seven key themes:-

- Climate change
- Timber
- · Business development
- · Community development
- · Access & Health
- Environmental quality
- Biodiversity

Table 1. Relevant issues under the SFS and Tay Forest District Key Themes

SFS Key	Relevant issues identified for Blackcraig FDP
Themes	
Climate	Opportunities for contributing towards national targets for
Change	renewable energy via woodfuel and brash harvesting. Carbon
	sequestration increased by extending rotations and
	Continuous cover management in more stable stands.
Timber	Continue to grow quality timber sustainably. Increase the
	future broadleaved resource especially riparian woodland.
Business	Through timber harvesting, woodland establishment and
Development	maintenance. Continue to consider the landscape and
	recreation potential to local communities and tourism.
Community	Encourage communities who wish to become more involved in
Development	the management of, or outputs from, their local forest
Access and	Formal and informal access routes. Mostly the Right of way to
Health	Kilbo and Glen Doll.
Environmental	Maintain landscape by sensitive coupe design and maintaining
Quality	as diverse a species mix as the soils will support. Continue to
	work with local archaeologists and Historic Scotland to protect
	the ancient monuments in our care.
Biodiversity	Continue to expand the area of native woodland. Protect the
	water quality of the watercourses within the forest. Manage
	the areas of open moorland for the benefit of moorland birds.

Table 2. Initial brief and objectives for developing management proposals

Brief	Objectives
Minimise impact of forestry on the landscape	<ul> <li>Retain stable thinned crops beyond normal felling age to improve and vary the forest structure and reduce the visual impact of clearfelling.</li> <li>Improve the edge and internal views by planting more broadleaves.</li> <li>Fragment the upper margin to improve the transition to open moorland.</li> </ul>
Maintain production of quality timber	<ul> <li>carry out continuing programme of thinning and clearfell</li> <li>restock according to good silvicultural practice for species selection and planting density</li> </ul>
Maintain and enhance existing natural habitats	<ul> <li>Improve the moorland and forest edge to provide a better habitat for species such as Black grouse.</li> <li>Improve the riparian zones by planting more broadleaved woodland especially in the lower</li> </ul>
Preserve historic features	<ul> <li>protect all known features including Scheduled and Unscheduled Ancient Monuments</li> </ul>

## 2.0 Analysis of previous plan

### 2.1 Analysis from previous plan

The previous plan has been implemented fairly successfully with nearly all the coupes felled within the approval period (330 out of 388 ha). Some areas were held back, because they were stable enough to leave for a longer period and so improve the age diversity.

The restocking has been hampered by deer issues. The forest population had been relatively stable and under control, but when a Section 7 cull was carried out over the neighbouring ground a large number of hill deer were virtually driven into the forest by the intensive culling. Whilst the cull was necessary and overdue, the effect on our restocking success was disastrous. We had to erect a new deer along our whole eastern boundary and carry out a sustain cull for a number of years to try and bring our forest population back to the original levels.

## 3.0 Background Description

#### 3.1 Site factors

#### 3.1.1 Neighbouring landuse

The terrain is a mix of glen and ridge, with much of the ridge tops open moorland at 450- 600 metres.

The neighbouring land uses vary from grouse and deer moor, sheep farming and some neighbouring plantation and a tree nursery.

#### 3.1.2 Statutory and legal requirements and key external policies

There are no Statutory designated sites with the forest, but there are several unscheduled monuments, mostly of agricultural heritage.

The northern edge of the forest bounds the Cairngorms National park.

### 3.1.3 Geology Soils and landform

Glenisla is predominately underlain by Quartz-mica-schist, grit, slate and phyllite (Upper Dalradian), part of the large group of schists comprising the Dalradian series. Overlying the solid geology there are deposits of fluvioglacial till and shallow drift deposits left by the receding glaciers of the last ice age.

The soils in Glenisla Forest are predominately Upland brown earth and surface water gleys, in the southern half of the forest ironpan soils and podzols are more frequent on the higher ground. In the northern half end of the forest there are more gleys and some areas of flushed bog and ironpan soils on the upper margins. These soils suit a reasonable range of upland tree species, particularly Spruce, Larch and Scots pine. The most suitable broadleaves are birch, rowan, alder and willow.



#### 3.1.4 Water

There are three main burns in the forest. In the east of the forest the Glen Taitney burn flows into the Glendamff burn and then on to the Backwater reservoir, which supplies water to towns in Angus as well as Coupar Angus and Blairgowrie. Backwater provides additional supplies to Dundee should the demand on nearby Lintrathen Reservoir become too great. The Glen Taitney burn also provides the water supply for the local community at Glen Markie. Running parallel to west is the Glen Taitney burn is the Finlet burn, which flows into the Newton burn and then the River Isla. On the western forest edge is the Muckle burn, which mostly marches with the forest, only running through the forest for about a kilometre.

The Backwater reservoir borders the eastern forest edge and is a high quality untreated water supply and so it is especially important forest management does nothing to compromise this. When felling and restocking are carried out the Forest and Water Guidelines (3rd Edition) will be strictly adhered to. Timber extraction will normally avoid crossing the burns or main drains but, where necessary, each crossing point will be piped or bridged. Branches will be kept out of watercourses and trees will generally be felled away from the watercourses. Restocking any clearfell areas along side the reservoir will include a higher percentage of broadleaves as an added buffer for future operations.

#### 3.1.5 Climate

Glenisla forest reaches an altitude of 554 metres at the Crock, but the highest plantation runs up to 540 metres, which should be too high for productive conifers. However although we are bring the original tree line down slightly in places we are still planting to 520 metres in places. The soils are generally good for stability and the problems in the past have been with poor growth rates and snow break especially in the pine.

The average rainfall for the Angus Glens is between 500 and 1000mm per year depending largely on altitude and aspect.

Based on accumulated temperature and moisture deficit maps produced by *Pyatt et al.*, climatic conditions are described as cool wet.

3.1.6 Landscape value and character, visibility, recreational use, heritage, protection forestry.

#### Landscape value and character

The landscape of Angus glens, with the exception of Glen Doll is of a medium scale, with rolling, relatively gentle hills, running along the Highland Boundary Fault. These hills are the foothills of the Cairngorm massif, dominated by straths and glens.

A history of heavy grazing historically by sheep and now deer has limited seminatural woodlands to the more inaccessible gorges and burnsides. Most of the upland is heather moorland and the low ground a mix of farm and woodland plantation.

Glenisla forest is only partially visible from the B951 county road, belying it's true scale. Within the forest the felling that has taken place over the past 20 years has open up new internal views and made the forest more interesting.

#### Visibility (see Map 8)

Glenisla forest is not particularly prominent in the wider landscape and for most people their view is when travelling on the B951 Kirkton of Glenisla road, where the landform shields two thirds of the forest from view. The best view of the forest is from Redlatches on the unclassified Kilry to Brewlands bridge road.

The only real overview of forest is from the summits of the popular Munros Mayar and Dreish, but the forest is not particularly prominent in the wider landscape.

#### Recreational use (see Map 2)

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The main recreational use used to be cross country or Nordic skiing, but now so much of the forest has been felled and replanted the forest roads no longer hold the snow as long and there have been fewer cold winters with significant snow since 1996 (2009 and 2010 excepted). There is a Right of Way through the forest to Glen Doll via the Kilbo path. Although the Kilbo path is well used form the Glen Doll end, few people walk through Glenisla. There are core paths following forest roads around the Crock and a through route linking the Cateran trail with Glen Clova. There is a local pony trekking business in Glen Markie and they probably account for the majority of the forest visits.

There are some local aspirations to develop a mountain biking facility.

#### Heritage (see Map 2)

There are five unscheduled monuments within the forest; a sheep fank, two ruined buildings, a township and a limekiln. All of these monuments originate from more recent times and are associated with management of the land prior to afforestation.

### 3.1.7 Biodiversity (woodland, open ground, lochs and rivers)

In Glenisla the open margins of the forest have traditionally provided good habitat for Red Grouse and some heather management has been undertaken to improve this habitat.

The seed source of native broadleaved species for natural regeneration is very limited and so some small enclosures of native broadleaves have been established to remedy this. However to establish species such as alder and willow close to the burn edge and on flood plains where enclosures are not really suitable, the intention is to "saturate" plant knowing that some trees will succumb to browsing, but enough trees will make it through to create the riparian woodland.

# 3.1.8 The existing forest: (Age structure, species and yield class, access and LISS potential)

The forest was originally planted in the 1950's and 60's with Scots pine and larch. Sitka spruce was introduced in the 1960's, but did not become the main species of choice until the 1970's.

Felling started in the early 1990's and the restocking has been mostly Sitka spruce and European larch mixtures. The intention is to thin as much as possible and retain between 50 and 100 high quality larch per hectare into the next rotation of spruce. Scots pine has been retained where possible to allow it to grow on to maturity and to help mitigate and soften the impact of clearfelling.

On the better soils Sitka spruce can be very productive with Yield classes of 18 to 20, however 14 is probably a more true average. The Scots pine and larch is slower growing with typically yield classes of 8 to 10.

There is some scope for Continuous cover forestry on lower pine and larch areas, where and access is good.

Access is generally good with a comprehensive forest road network, although there are some logistical issues where crossing watercourses making thinning uneconomic in these areas.

## 4.0 Analysis and Concept

### 4.1 Constraints and opportunities for each site factor.

The Analysis and Concept maps show the factors which, through our consultation and development periods, have significantly influenced the design and long term vision of this forest.

### 4.2 Design Concept

The design concept has been graphically presented in the site analysis and design concept maps (Map 3 and Map 4).

The intention with this plan is to produce a woodland that meets the demands of timber production, landscaping, biodiversity and recreation in a sustainable manner while retaining flexibility to adapt to priority changes in both the short and long term as well as any opportunities that present themselves.

The concept encompasses 5 core areas, each of which is briefly outlined below.

#### <u>Timber production</u>

Glenisla is a highly productive forest and has a proven record of growing high quality timber. However the rate of felling has been high over the past 2 decades and so in order to improve the age structure felling will slow down, by extending rotation length and using low impact silviculture where conditions allow.

The main constraint to growing quality timber remains browsing by deer. The neighbouring hill populations of deer remain very high and especially in winters with heavy snowfall large numbers of deer can cross the deer fences and take shelter in the plantation. These deer decimate the young trees when they are all that is showing above the snow.



#### Landscaping

There are few views of Glenisla forest that make much of an impact; the main areas of visibility are from the B951 county road and from the 2 car parks at the Backwater reservoir. The main issues are the banding effect highlighted by larch planting along the contours and also the remains of the old larch firebreak planted around the edge of the forest. The restocking plan will address both these features.

The upper margins will be softened by Scots pine retentions and by planting a more varied edge. The "estate mix" of larch scattered through the Scots pine and spruce restocking will continue to be used to alleviate the impact of solid evergreen planting and to create winter contrast.

The planting of native woodland in the riparian zones will improve the internal views and create a interest from the Right of Way.

#### Recreation

The majority of recreational use in Glenisla comes from the visitors to the Backwater reservoir, where the forest forms the backdrop, pony trekking through and around the forest and walkers using the Right of Way or simply dog walking.

The gradual change to a more mixed and diverse forest together with more thinning and continuous cover will improve the attractiveness to the forest users. It is unlikely that the level of recreational use will change markedly in the near future, but there are community initiatives to try and attract more visitors into the area and should they be successful the forest may well play a useful role as part of that visitor experience.

#### Conservation

The biggest change proposed will be to establish riparian native woodland up the main watercourses. This will be dependent on maintaining a good deer fence and appropriate deer control. The recent winter snowfall has highlighted the limitations of any deer fence and consideration is being given to a secondary line of defence by adding an electric stand off wire to help reinforce the most vulnerable sections of the fence.

The upper open moorland within the forest will continue to be managed for good heather for grouse. In the longer term with lower grazing levels Scots pine, birch and rowan will colonise some of this open moor to create a more natural forest edge and upper margin.

#### <u>Heritage</u>

Any existing unscheduled monuments within the forest will be left undisturbed where possible. There is opportunity to increase the visibility of some of these at the site level planning stage, which will add to the interest of the forest to visitors using the forest road network.

## 5.0 Management Proposals

### 5.1 Future Management

There are 13 coupes proposed to be felled during the approval period, the main driver being the age and stability of the current crop. Where possible groups of Scots pine will be retained to help break up the coupes and create more structural diversity, but much of the Scots pine is poor form and damaged by snow break and suggests that the wrong provenance was chosen when planted.

### 5.2 Future habitats and species (see Map 6)

Glenisla will continue to have Sitka spruce as the main species. The amount of Lodgepole pine will gradually decrease and the levels of Scots pine and larch remain more or less the same. The amount of broadleaves will increase in the riparian zones, and also as component of the conifer plantation. Soils with the most potential for extended rotations and LISS together will include more European larch. The upper margin where heather is the dominant vegetation will be planted with more Scots pine. There will also be an increase in the broadleaves with more birch and rowan in the upper heather and ash woodland in the River Ardle riparian zone. Open space increases from the current 16% to 24% in the long term as we create more space on the upper margin and in the riparian zones.

## 5.3 Restructuring (see Map 5 and Map 6)

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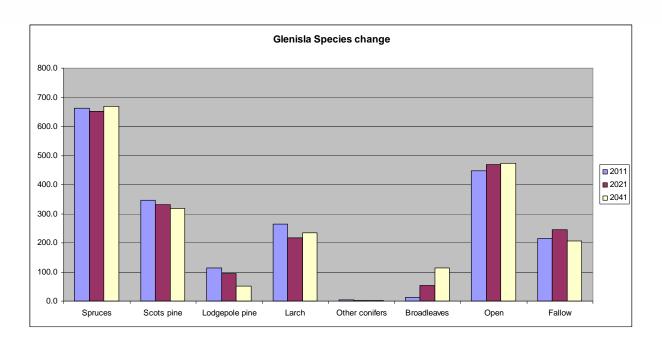
Restructuring the forest is well underway with the 1990-1999 and 2000-2009 restocking. The age class chart below clearly shows the steady progression of this process continuing throughout the plan. Where the soils and rooting depth are suitable and the current crop has been well thinned and LISS will be used, but these conditions only apply to the drier soils growing predominately larch and Scots pine.



## 5.4 Species tables

The table and chart below show the approximate changes in species that will result through the implementation of this plan.

	Existing (%)	Approval period (%)	By 2041 (%)
Spruces	32%	32%	32%
Scots pine	17%	16%	15%
Lodgepole pine	6%	5%	2%
Larch	13%	11%	11%
Other conifers	0%	0%	0%
Broadleaves	1%	3%	5%
Open	22%	23%	23%
Fallow	10%	13%	12%
TOTAL	100%	100%	100%



### 5.5 Management of open land

There has always been a significant area of open land above the already high tree planting. This is generally open heather moorland and will continue to be managed as such. There will be a small gain in this area as we bring the conifer replanting down slightly. The other open areas are in the riparian zones and much of the felling during the past 2 decades has concentrated in opening up these watercourses, and so there will be a negligible increase in open space. There will be a significant increase in broadleaved planting in the riparian zone.

#### 5.5 PAWS restoration

There are no remnants of ancient woodland recorded for this forest.

### 5.6 Deer Management

The forest has a well managed roe deer population and a red deer population that has experienced large fluctuations due to winter incursions during periods of heavy snow. The perimeter deer fences are generally in good condition are have been consistently replaced and maintained as required, but are not immune to being covered by snow. Alternative ways of protecting the most vulnerable sections of fence and increasing the culling resource will be necessary to manage the winter recruitment of deer. We have successfully used some fence enclosures to establish more palatable broadleaved species, but that cannot be used in all situations.

#### 5.7 Critical factors

The most critical factor will be the ongoing issue of deer management. The new boundary fence will be well maintained and extra culling resources will be used when required. The upper fence could also be vulnerable in bad winters with snow overtopping it, however the additional stand off wire should mitigate against this threat.

## Appendix I: Forest Design Plan Consultation Record

A "drop in" event was held in Glenisla village hall on the 29<sup>th</sup> June 2011. rest panel meeting for Blackcraig 13 March 2009 (note: comments are attributed to the group as a whole)

Name	Organisation	Attended	Comments returned	
Paul Clark	Perth & Kinross Council	No	1 July 2011	Map of core paths and highlighting the recreational interest in and around the Crock
Victor Clements	Scottish Native Woods	No	23 June 2011	Take opportunity to develop open space and broadleaved woodland in the riparian zones. Also potential for broadleaved woodland north of Freuchies and beside the Backwater reservoir.
Andrew Jardine	SEPA	No	27 June 2011	Work should be carried out in accordance with the Forest and Water Guidelines
John McKinlay	Neighbour	Yes	29 June 2011	Just interest no issues.
George Jarvis	Neighbour	Yes	29 June 2011	Just interest no issues.
Major Gibb	Neighbour	Yes	29 June 2011	Made comment on how his access through the forest is now seldom used. Was interested in the recent installation of deer leaps.
Nicolas Gibb	Neighbour	Yes	29 June 2011	None
James Debenham	Neighbour	Yes	29 June 2011	Generally, but would like a copy of the finished plan.
J Bain	Neighbour	Yes	29 June 2011	Just interest no issues.

James Guthrie	Neighbour	Yes	29 June 2011	Just interest no issues.
Jim Muir	Neighbour	Yes	29 June 2011	Just interest no issues.
Jim Donald	Neighbour	Yes	29 June 2011	Just interest no issues.
Dave Wood	Neighbour	Yes	29 June 2011	Just interest no issues.

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# Appendix II: Tolerance Table

	Adjustment to felling coupe boundaries	Timing of restocking	Change to species	Windthrow response
FC Approval not normally required	0.5 ha or 5% of coupe – whichever is less.	Variation of less than 2 planting seasons from standard restock year, 4 years post-felling.	Up to 5% species exchange	Up to 1.0 ha.
Approval by exchange of letters and map	0.5 ha to 2.0 ha or 10% of coupe – whichever is less.		>15% species change	1.0 ha to 5.0 ha  – if mainly Windblown trees. Between 5.0 ha to 10.0 ha in areas of low sensitivity.
Approval by formal plan amendment	Greater than 2.0 ha or 10% of coupe.	Variation of greater than 2 planting seasons from standard restock year, 4 years post-felling.	Change from broadleaf to Conifer Reduction in native broadleaves by >5% Reduction of >10% of productive net area	Greater than 5.0 ha in areas of medium to high sensitivity.

## Appendix III: Continuous Cover Prescriptions

Plan ref and compt range	FCIN 40 score	Reason for selection	Long-term structure or objective and expected species	Silvicultural system	CCF: Prescription	BLVD: Target tree cover (%) – Timescale (years)	Observations (e.g. likely barriers to achieving objective)	Next treatment required	Proposed monitoring
A	M6	Stable and well enough thinned on predominantly Upland brown earths	Simple. Predominantly larch and SP	Shelterwood	Thin to 25m <sup>2</sup> Basal area (BA) in the SP and 20m <sup>2</sup> in the larch probably within 2 thinnings		Deer browsing and vegetation	Crown thinning	Basal area (BA) checks
В	M6	Stable and well enough thinned on predominantly Upland brown earths	Simple. Predominantly EL and SP	Shelterwood	BA already low enough underplant with EL and SP (Glen Tanar/Rannoch)		Deer browsing and vegetation	Planting and removal of SS	Stocking Density Assessments
С	M6	Stable site on good soils currently underthinned	Simple. Predominantly SP and larch	Shelterwood	Thin to 25m <sup>2</sup> Basal area (BA) in the SP and 20m <sup>2</sup> in the larch probably over 4 thinnings		Deer browsing and vegetation		Basal area (BA) checks

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