Agroforestry & Woodlot Extension Society

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Riparian Forest Buffer Design Worksheet

This worksheet is a tool to help guide you through the process of designing a riparian forest buffer. It is meant to complement AWES' *Manual for Riparian Forest Buffer Establishment in Alberta*, which is available through AWES' website, http://www.awes-ab.ca/. More information on each of the questions is provided in the *Manual.*

Name_____ Address/Legal Land Description_____ Date_____

Step 1: Site Assessment

1. **Plant hardiness zone**: ____
2. **Soil moisture**: □ Dry □ Average □ Moist □ Wet □ Aquatic
3. **Flooding frequency**: □ <6 months □ 6-12 months □ 1-3 years □ >3 years
4. **Soil texture**: □ Sand □ Loamy sand □ Sandy loam □ Silty loam
   □ Sandy clay loam □ Clay loam □ Sandy clay □ Clay
5. **Soil compaction**: □ Loose □ Not compacted □ Moderately compacted
   □ Highly compacted
6. **Invasive species/noxious weeds present**:
   _____
   _____
7. **Wildlife or livestock present**:
   _____
   _____
8. **Light:** □ Full sun □ Partial shade □ Full shade
9. **Prevailing winter winds (circle all that apply):** ↑ ↗ → ↘ ↓ ↙ ← ↖
10. **Prevailing summer winds (circle all that apply):** ↑ ↗ → ↘ ↓ ↙ ← ↖
11. **Wind exposure:** □ Very windy □ Windy □ Somewhat windy □ Sheltered
12. **Natural region:** □ Boreal forest □ Parkland □ Grassland □ Foothills
13. **Existing native vegetation:**
    _____
    _____

Step 2: Planning Your Project

14. **Project goals (check all that apply):** □ Bank stabilization and erosion control □ Water temperature cooling and evaporation reduction □ Water quality enhancement □ Flood risk reduction □ Groundwater recharge □ Wildlife habitat □ Provision of food, fuel, forage, or timber products □ Other: _____

15. **Fill in the following Planting Plan Table**. For each component of your planting project, write out a description (e.g. Component 1: Understory planting in the terrace zone), the size or length of the component, one or more species that will be planted within it, the stock type of each species (i.e. container plug, bare root, cuttings, or seed), the spacing between seedlings, and the quantity of seedlings required of each species. Refer to Appendix C in AWES' *Manual* for assistance with calculating planting area size and quantity of seedlings required.

Description	Size (area or length)	Species	Stock type	Spacing	Quantity

16. **Fill out the timeline for your project by drawing lines that indicate when each activity will be occurring.**

Year 1: _____	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Site Assessment												
Planning your Project												
Obtaining Stock												
Site Preparation												
Planting												
Monitoring and maintenance												
Year 2: _____	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Site Assessment												
Planning your Project												
Obtaining Stock												
Site Preparation												
Planting												
Monitoring and maintenance												

17. **Fill out the budget for your project, based on your answers to the other questions (this may be the final step in the process).** It is not necessary to complete all of the blanks provided, as certain costs may not be relevant for your riparian forest buffer. For example, small-scale buffers (<500 seedlings) may not require hiring professional tree planters.

Step	Item	Quantity	Unit cost	Cost
Site assessment	Labour time	__ hours	$__/hour	$ ___
Planting design	Labour time	__ hours	$__/hour	$ ___
Obtaining stock	Labour time	__ hours	$__/hour	$ ___
	Travel to nursery	__km	$__/km	$ ___
	_________ seed(lings)	__ seed(lings)	$__/seed(lings)	$ ___
	_________ seed(lings)	__ seed(lings)	$__/seed(lings)	$ ___
	_________ seed(lings)	__ seed(lings)	$__/seed(lings)	$ ___
	_________ seed(lings)	__ seed(lings)	$__/seed(lings)	$ ___
	_________ seed(lings)	__ seed(lings)	$__/seed(lings)	$ ___
	_________ seed(lings)	__ seed(lings)	$__/seed(lings)	$ ___
	_________ seed(lings)	__ seed(lings)	$__/seed(lings)	$ ___
	_________ seed(lings)	__ seed(lings)	$__/seed(lings)	$ ___
	_________ seed(lings)	__ seed(lings)	$__/seed(lings)	$ ___
	_________ seed(lings)	__ seed(lings)	$__/seed(lings)	$ ___
Site preparation	Labour time	__ hours	$__/hour	$ ___
	Machinery use	__ hours	$__/hour	$ ___
	________ (e.g. mulch, herbicides, UV-treated plastic)	_______	$______	$ ___
Planting	Labour time	__ hours	$ __/hour	$ ___
	Professional planter contract	__ seedlings	$__/plug	$ ___
Monitoring and maintenance	Labour time	__ hours	$ __/hour	$ ___
			Total	**$ ___**

Step 3: Obtaining Stock

18. **Stock types (check all that will be used):** □ Container plug □ Bare root □ Cuttings □ Seed
19. **Method of obtainment:** □ Ordering from a nursery □ Collecting by hand

Step 4: Site Preparation

20. **Is site preparation required?** □ Yes □ No (if no, skip to Planting section)
21. **Site preparation goals**: □ Reduce competition from existing vegetation □ Alleviate soil compaction □ Other _____
22. **Check off which site preparation techniques will be used, and provide details in the space below**: □ Tilling □ Mowing □ Herbicides □ Solarization □ Hand pulling □ Grazing □ Mulching □ Waiting □ Planting a cover crop □ Mounding □ Deep tilling □ Other: _____

Details:

_____
_____
_____
_____
_____

Step 5: Planting

23. **Planting labour and equipment needs**: □ Planting by hand □ Planting using a mechanical tree planter □ Hiring professional tree planters □ Broadcast seeding □ Seed drilling □ Hydroseeding □ Other: _____

Step 6: Monitoring and Maintenance

24. **What threats could affect the survival of seedlings?:** □ Competing vegetation □ Drought □ Browse (specify livestock or wildlife species): _____ □ Other _____
25. **If applicable, indicate how the threat of competing vegetation will be mitigated, and provide details below:** □ Tilling □ Mowing □ Herbicides □ Solarization □ Hand pulling □ Grazing □ Mulching □ Other: _____

Details:

_____
_____
_____

26. **If applicable, indicate how the threat of drought will be mitigated, and provide details below:** □ Mobile irrigation system □ Drip irrigation □ Flood irrigation □ Organic mulch □ Other: _____

Details:

_____

_____

_____

27. **If applicable, indicate how the threat of browse will be mitigated, and provide details below:** □ Fencing □ Physical barriers around seedlings □ Repellents □ Other: _____

Details:

_____

_____

_____

28. **Describe how you plan to evaluate the success of your project:**

_____

_____

_____

For more information on riparian forest buffer design please contact:

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Please visit our website: http://www.awes-ab.ca

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