Oregon Forest Resources Institute

EASTSIDE FOREST STREAM PROTECTION DIAGRAMS

Oregon Forest Practices Act riparian management area prescriptions

Standard practice: July 2023

This booklet includes a set of diagrams intended to help forest landowners planning a timber harvest to interpret current riparian management area prescriptions required under the Oregon Forest Practices Act. Identify the smallest stream type on your property in the left-hand column. Then, choose which stream type it merges with from the bottom row. Go to the indicated page.

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flows into...

Small Type Np (lateral) | Small Type Np (terminal) | Medium Type N | Large Type N | Small Type F/SSBT | Medium Type F/SSBT | Large Type F/SSBT

Stream Type

WATER PROTECTION RULES FOR PRIVATE FORESTS HAVE CHANGED

The Oregon Forest Practices Act has changed as a result of the Private Forest Accord, an agreement signed in 2021 by 13 conservation and fisheries groups, 11 timber companies and the Oregon Small Woodlands Association. The changes are intended to minimize and mitigate the effects logging and other forest management activities may have on water quality and aquatic habitats.

The current requirements include no-cut tree retention areas that are 10% to 100% larger, depending on stream type and location, plus new protections for non-fish-bearing streams.

The following diagrams detail riparian management area (RMA) widths and prescriptions for eastern Oregon under the standard practice rules for large private forest landowners.

The new forest practice rules for expanded riparian protections went into effect on July 1, 2023, for forest landowners who own 5,000 or more acres. All private forest landowners will be required to follow the new rules starting Jan. 1, 2024.

WESTERN vs. EASTERN REGULATIONS

The updated forest practice rules for stream vegetation retention are based on two distinct geographic regions: eastern Oregon and western Oregon. The diagrams and information in this book only represent eastern Oregon RMA prescriptions. Eastern RMAs generally require inner and outer protection zones to restrict or prohibit timber harvesting along all fish-bearing streams, and along large and medium non-fish-bearing streams.

LARGE vs. SMALL FOREST LANDOWNERS

An estimated 3.6 million acres of Oregon forestlands are owned by landowners with fewer than 5,000 acres. Under the new forest practice rules, a small forest landowner (SFO) is defined specifically as someone who owns fewer than 5,000 acres of forestland and harvests no more than 2 million board feet per year, on average.

Under the new forest practice rules, a "small forest landowner minimum option" allows qualified small forest landowners to leave narrower no-cut tree retention areas than the standard practice width required for large forest landowners. Another special consideration for small forest landowners is a new tax credit program to compensate for lost revenue if they agree to exclude timber harvest in the expanded stream-buffer zones required for large forest landowners. To qualify for the tax credit, small forest landowners would have to use the new standard practice required for large forest landowners for riparian areas instead of the small forest landowner minimum option for the next 50 years. See pages 32-33 for more information.

All forest landowners can still submit alternative vegetation retention plans to the Oregon Department of Forestry.

OREGON DEPARTMENT OF FORESTRY RESOURCES

The Oregon Department of Forestry (ODF) has established a Small Forestland Owner Assistance Office to help SFOs understand and follow the state's new forest practice regulations. For more details, visit ODF's Forest Practices Act FAQ page: https://www.oregon.gov/odf/working/documents/faqs-fpa-rules-all-combined.pdf

For help identifying stream designations — such as size, fish presence, and terminal or lateral classification — visit the ODF Streams and Steep Slopes mapping website:
https://geo.maps.arcgis.com/apps/webappviewer/index.html?id=dde877f74cf84fdba53bd4b57204c2fe

DEFINITIONS

Buffer: a common term for a no-cut tree retention area

Channel: a distinct bed or banks that confine water and that periodically or continually contains flowing water

Confluence: a place where one stream enters another stream or river, or where one type of stream changes to another type of stream due to a fish passage obstruction or a change in water volume

ELZ: an equipment limitation zone of 30 feet wide on either side of an eastern Oregon stream where disturbance from equipment activity must be minimized

Flow feature: flowing water for 25 continuous feet or more

Inner zone: an area along each side of a stream where trees and vegetation must be retained; in eastern Oregon, the width of this no-cut zone is 30 feet from the edge of the active channel

Large stream: a stream with an average annual flow of 10 cubic feet per second or more

Lateral stream: a Type Np (non-fish-bearing, perennial) stream that connects to but is not in line with a Type F (fish-bearing) stream

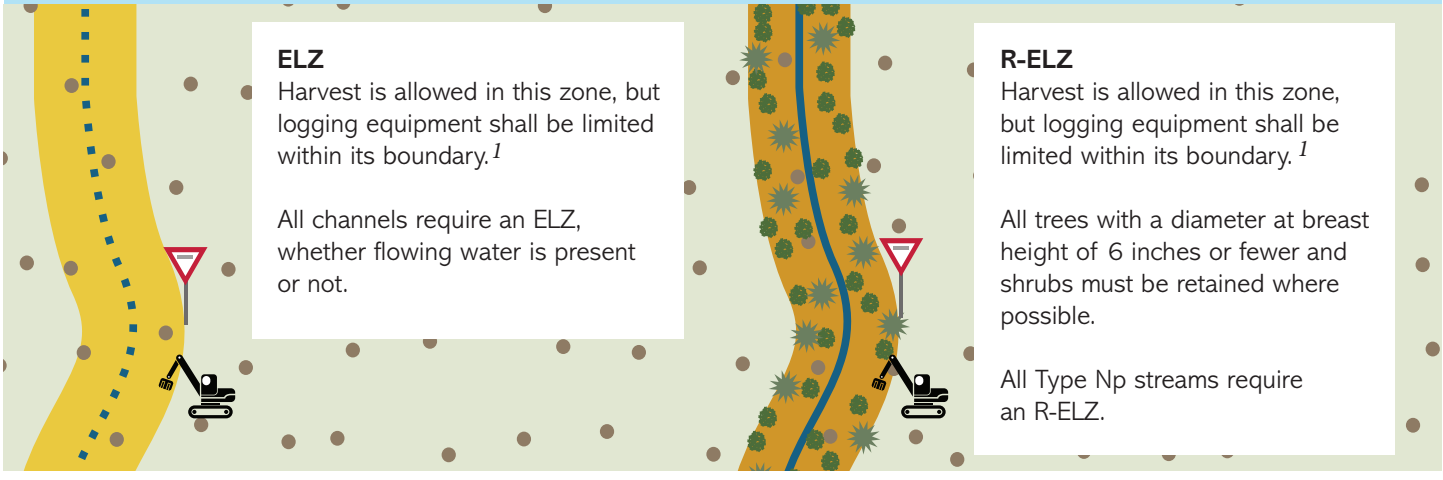
Outer zone: a protected area along streams, located outside the 30-foot inner zone; the width of the outer zone varies by stream size; timber harvest is allowed in this zone, but landowners must retain a minimum of 60 square feet of basal area per acre; all outer zones have an ELZ that extends for 30 feet from the outer edge of the no-cut inner zone

R-ELZ: an equipment limitation zone where disturbance from equipment activity must be minimized, and all trees less than 6 inches diameter at breast height and shrubs must be retained where possible; these zones are currently 30 feet wide in eastern Oregon

RH max: starting at the confluence of a non-fish-bearing stream (Type Np) and a fish-bearing stream (Type F), or salmon, steelhead or bull trout (SSBT) stream, the RH max is the maximum upstream distance that will require a protective tree retention area along the Type Np stream; the RH max is greater for terminal Type Np streams (500 feet) than for lateral Type Np streams (250 feet)

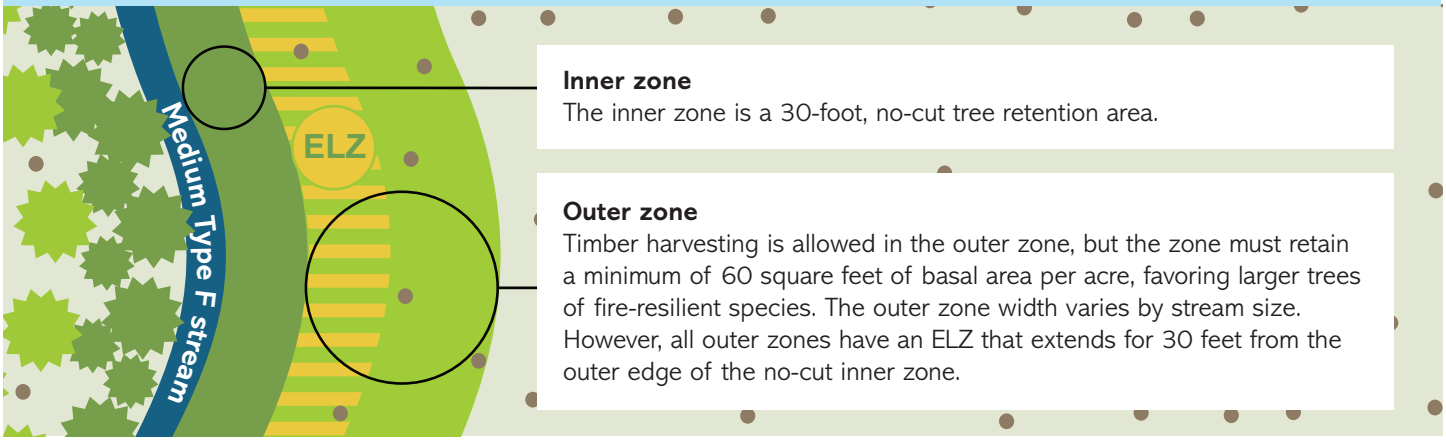
Riparian management area (RMA): an area along each side of stream or river where tree and vegetation retention and special management practices are required for the protection of water quality, hydrologic functions, and fish and wildlife habitat; many RMAs are "no-cut," meaning trees must be left standing within their boundaries; no-cut tree retention areas are commonly referred to as "stream buffers"

COMPARING THE TWO EQUIPMENT LIMITATION ZONES (ELZ vs. R-ELZ)



1. Operators must take corrective action(s) when soil disturbance from ground-based equipment exceeds 10% or cable-based equipment exceeds 20% of the total area within any ELZ or R-ELZ within a logging operation unit. (OAR 629-630-0700, 629-630-0800)

INNER ZONE AND OUTER ZONE RIPARIAN MANAGEMENT AREAS



Small stream: a stream with an average annual flow of 2 cubic feet per second or less

Terminal stream: the largest Type Np stream that is in line with and immediately upstream of a Type F or Type SSBT fish-bearing stream

Type D stream: a stream that has domestic water use but is not fish-bearing

Type F stream: a fish-bearing stream

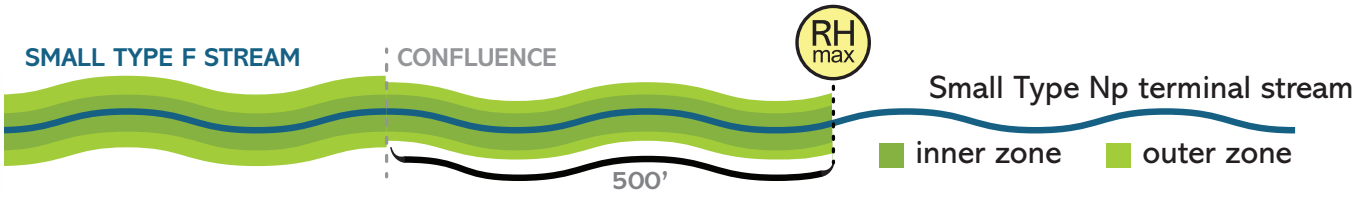
Type N stream: a non-fish-bearing stream

Type Np stream: a non-fish-bearing perennial stream; it contains water throughout the year and includes all perennial streams that are not Type SSBT, Type F or Type D

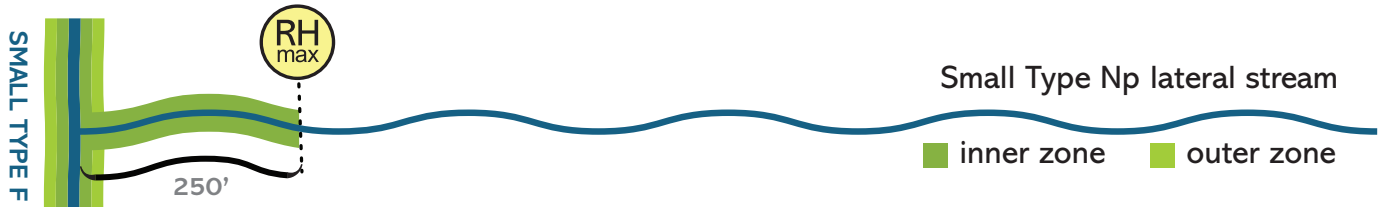
Type Ns stream: a non-fish-bearing seasonal stream; contains water for part of the year, and includes all seasonal stream reaches that are not Type SSBT, Type F, Type D or Type Np

Type SSBT stream: a stream inhabited by salmon, steelhead or bull trout

HOW DO YOU DETERMINE THE RH MAX DISTANCE?

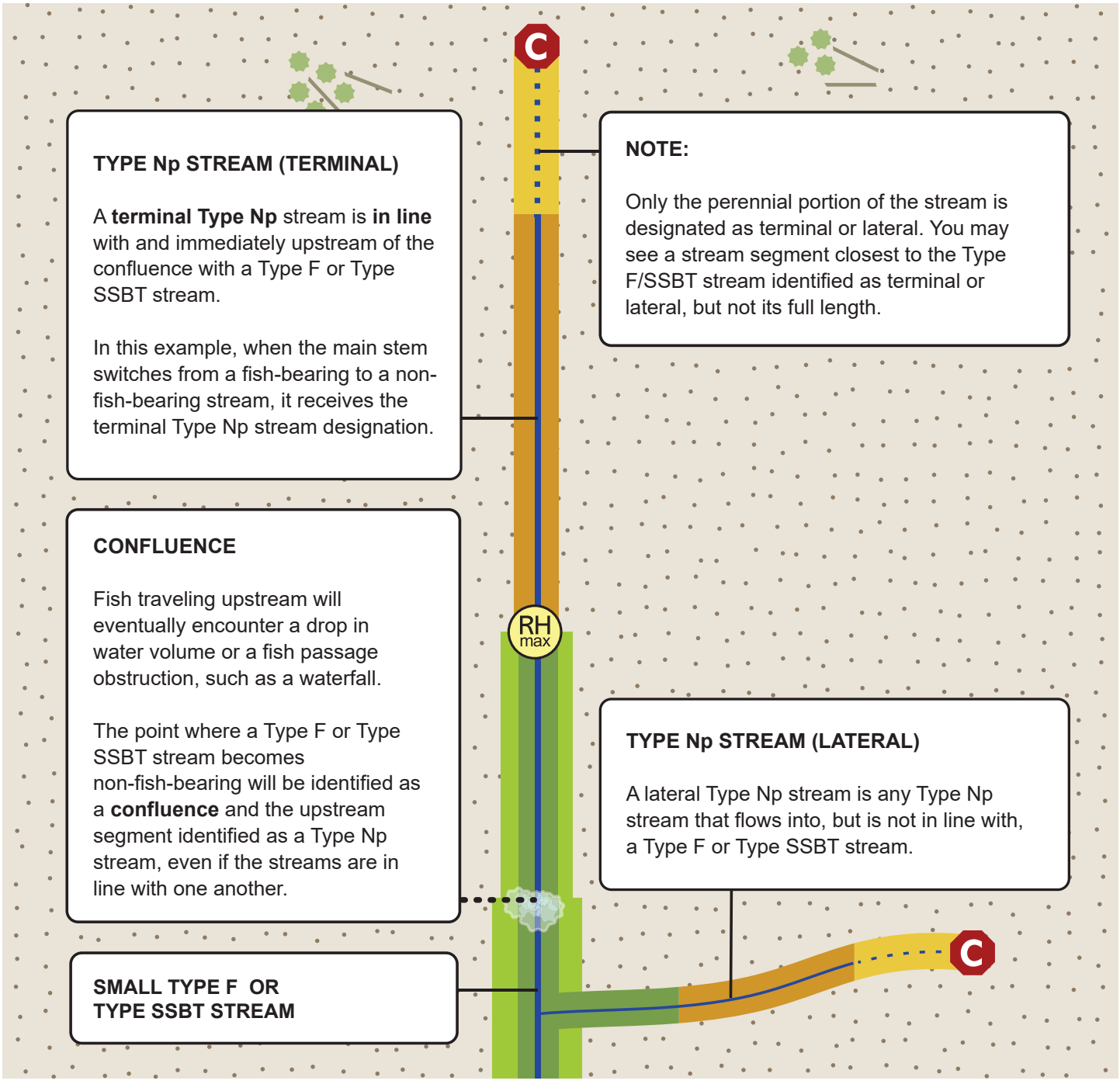


On a Type Np **terminal** stream — a small, perennial, non-fish-bearing stream in line with a Type F (fish-bearing) stream — the RH max is 500 feet (slope distance) from the confluence with the Type F stream. A 30-foot, no-cut inner zone and a 30-foot outer zone must be left along each side of the stream.



On a Type Np **lateral** stream — a small, perennial, non-fish-bearing stream that flows into but is not in line with a Type F (fish-bearing) stream — the RH max is 250 feet (slope distance) from the confluence with the Type F stream. A 30-foot, no-cut tree retention zone must be left along each side of the stream. An outer zone is not required.

Terminal vs. lateral Type Np streams



LEGEND

- End of stream channel
- Dry channel
- Flowing water
- RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

Terminal and lateral Type Np streams on the landscape

TYPE F STREAM

In eastern Oregon, any given stream basin may have a Type F or Type SSBT stream, along with many Type N streams (both Type Np and Type Ns). Fish traveling upstream in the Type F or Type SSBT stream will eventually encounter a drop in water volume or a fish passage obstruction, such as a waterfall. This is considered a confluence.*

TYPE Np STREAM (TERMINAL)

When that Type F or Type SSBT stream becomes a non-fish-bearing stream, the in-line upstream portion becomes the terminal Type Np stream.

There is only one terminal Type Np stream above a small, fish-bearing stream. It will be the largest Type Np stream. All other streams in that basin will be designated lateral or none.

TYPE Np STREAM (LATERAL)

Lateral Type Np streams flow directly into a Type F or Type SSBT stream, but they do not flow in line with it. They are also smaller than the terminal Type Np stream. A single basin can hold dozens of lateral Type Np streams.

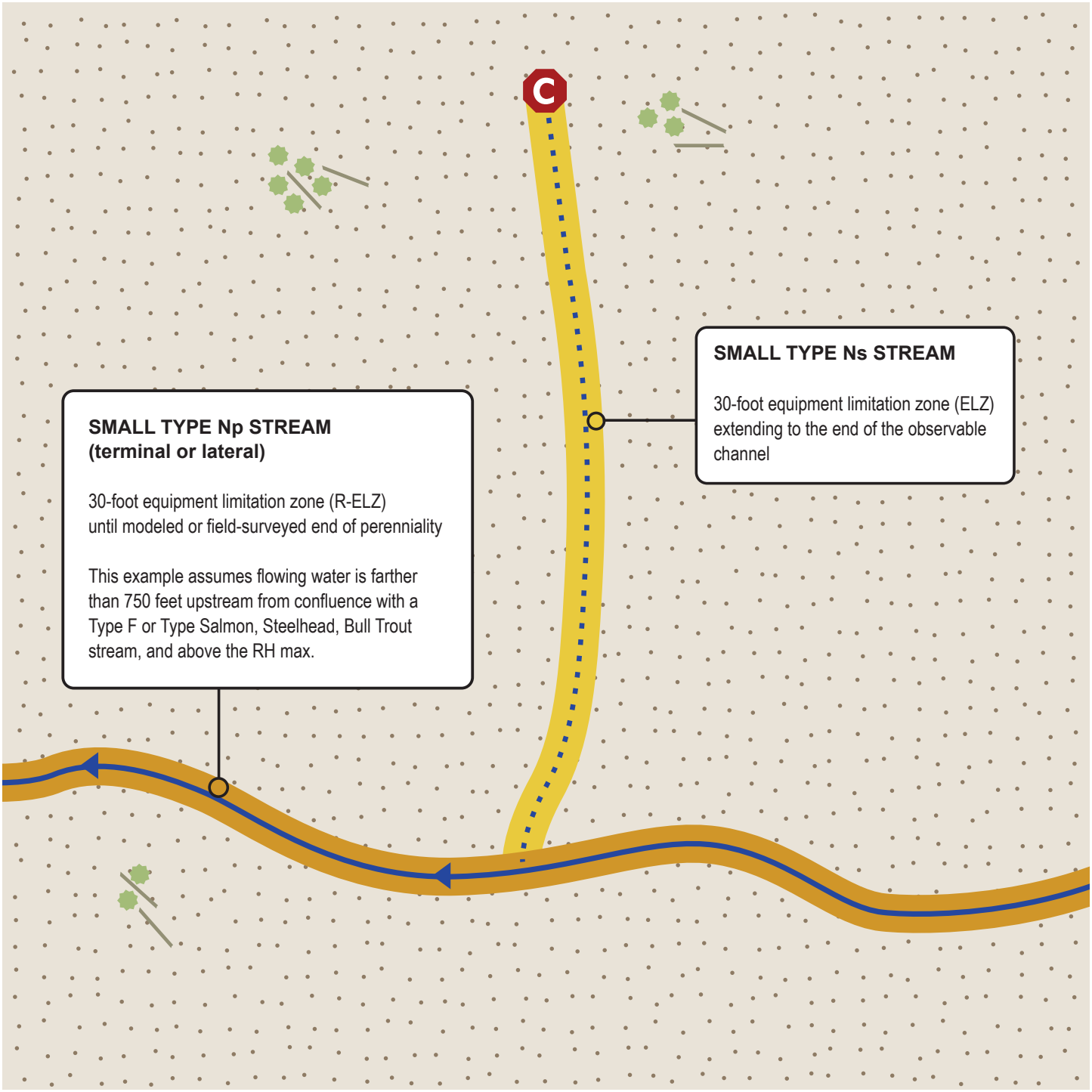
TYPE Np or Type Ns (NONE) STREAMS

In the Oregon Department of Forestry stream mapping application (see link below), some streams are labeled “none.” Streams designated as “none” are either Type Ns (seasonal) streams or streams that flow into another Type Np stream.

NOTE:
All perennial (Type Np) streams receive at least an R-ELZ. All seasonal streams (Type Ns) receive at least an ELZ. The assignment of Type Np streams as “terminal” or “lateral” or “none” determines whether they have an added tree retention area.

For help identifying these stream designations, visit the ODF Streams and Steep Slopes mapping website: https://geo.maps.arcgis.com/apps/webappviewer/index.html?id=dde877f74cf84fdba53bd4b57204c2fe

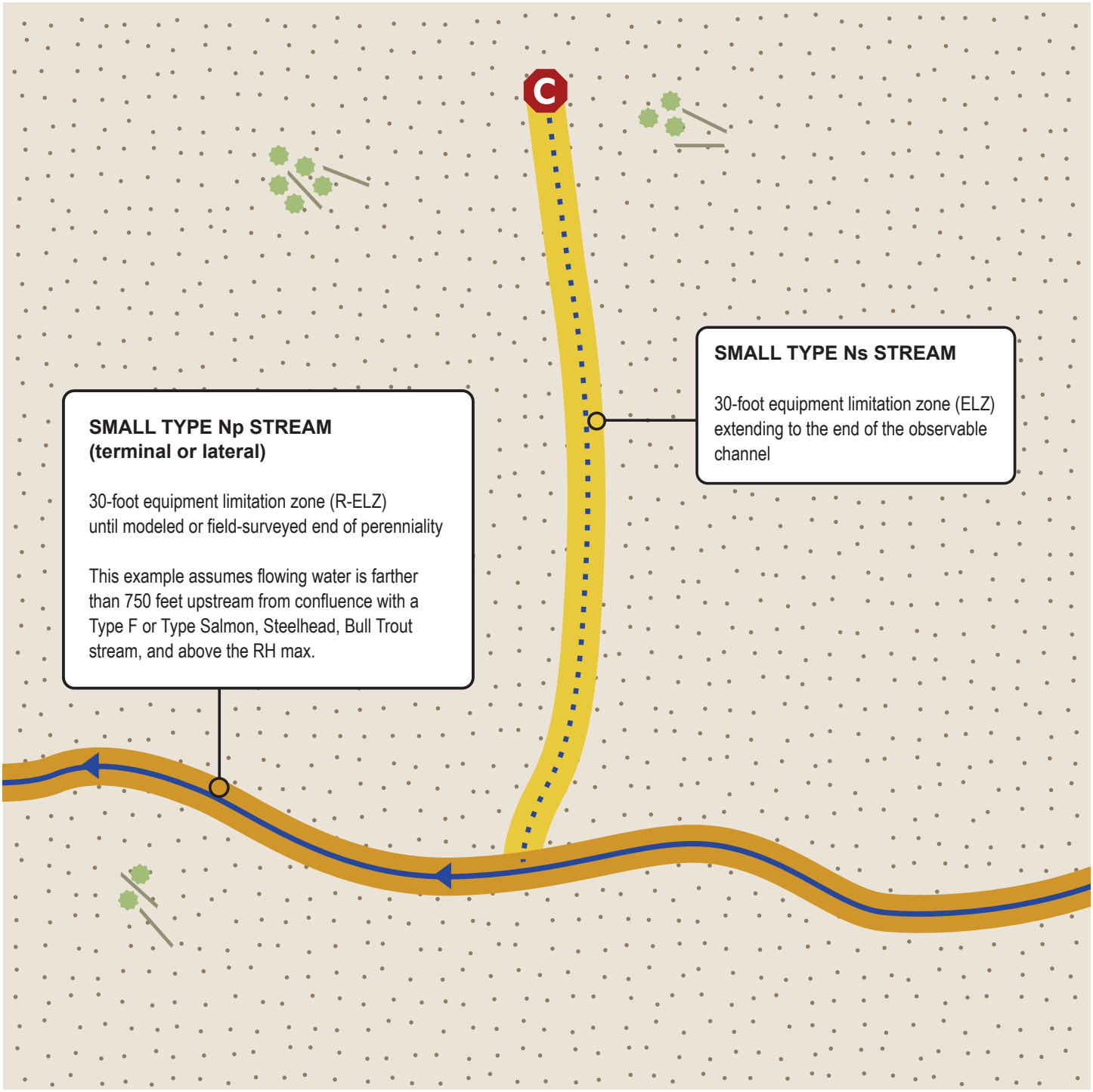
Small Type Ns *flows into* Small Type Np (lateral)



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max (RH max)
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

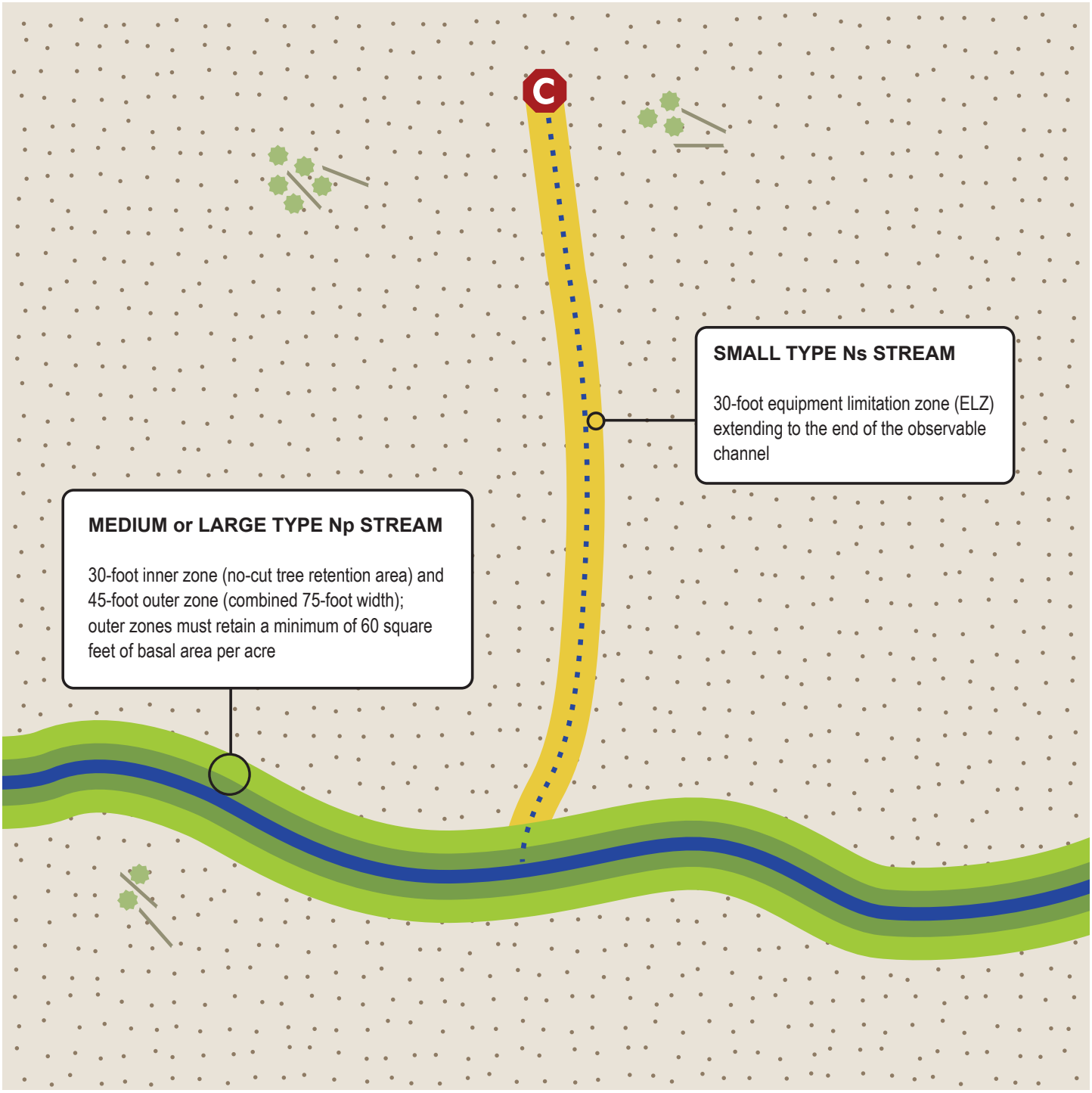
Small Type Ns *flows into* Small Type Np (terminal)



LEGEND

- End of stream channel
- Dry channel
- Flowing water
- RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

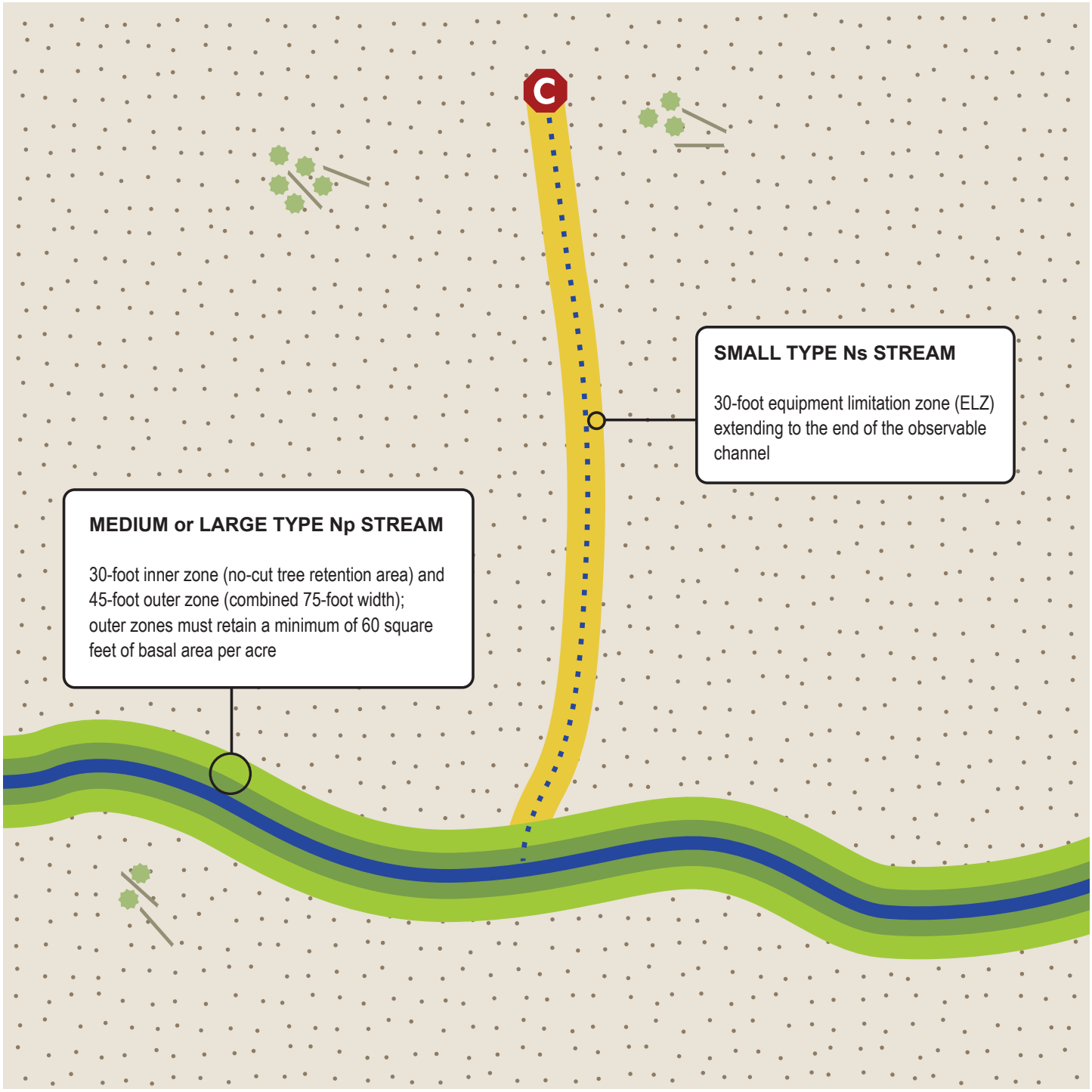
Small Type Ns *flows into* Medium Type Np



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

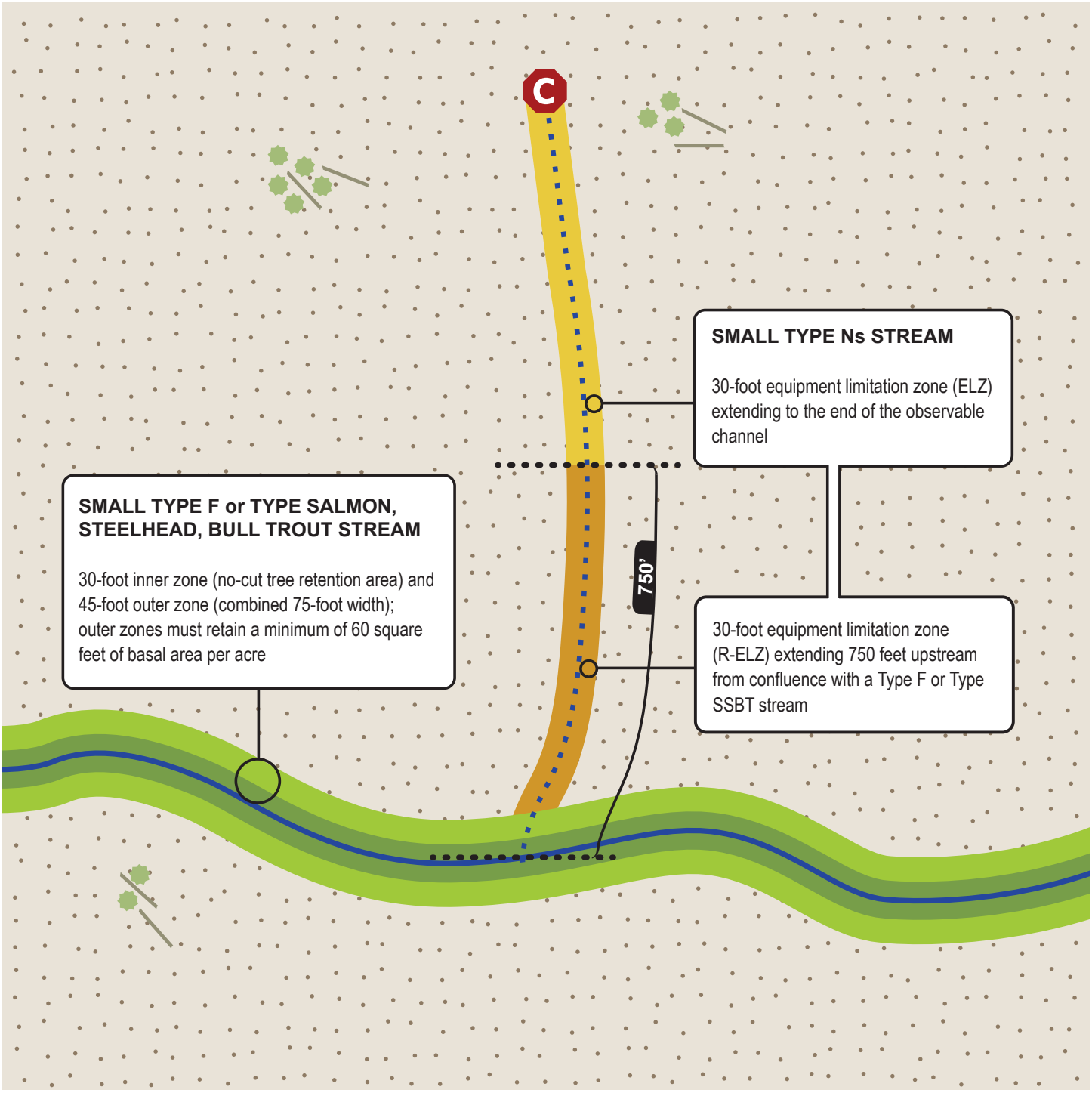
Small Type Ns *flows into* Large Type Np



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

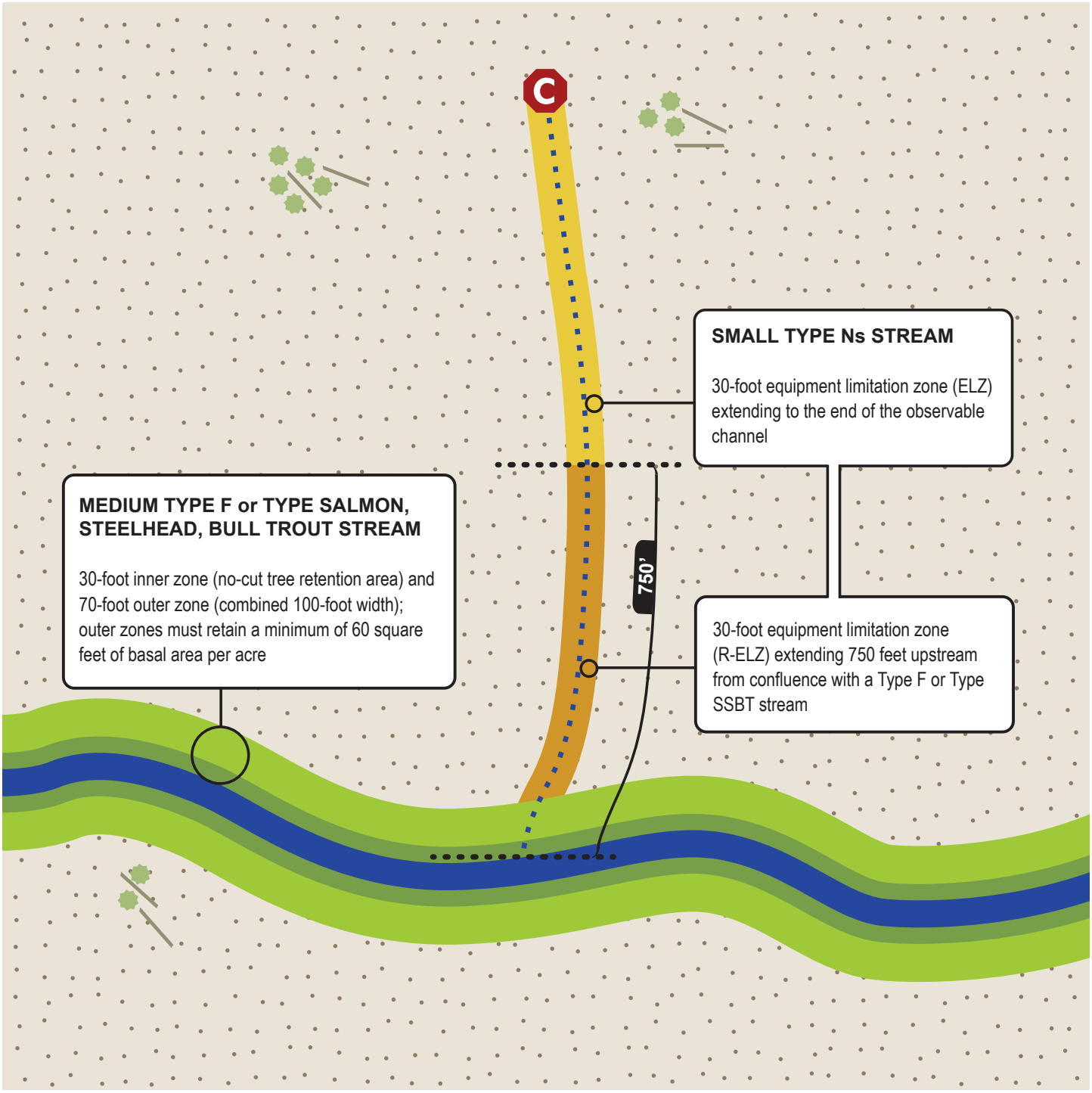
Small Type Ns *flows into* Small Type F or Type SSBT



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

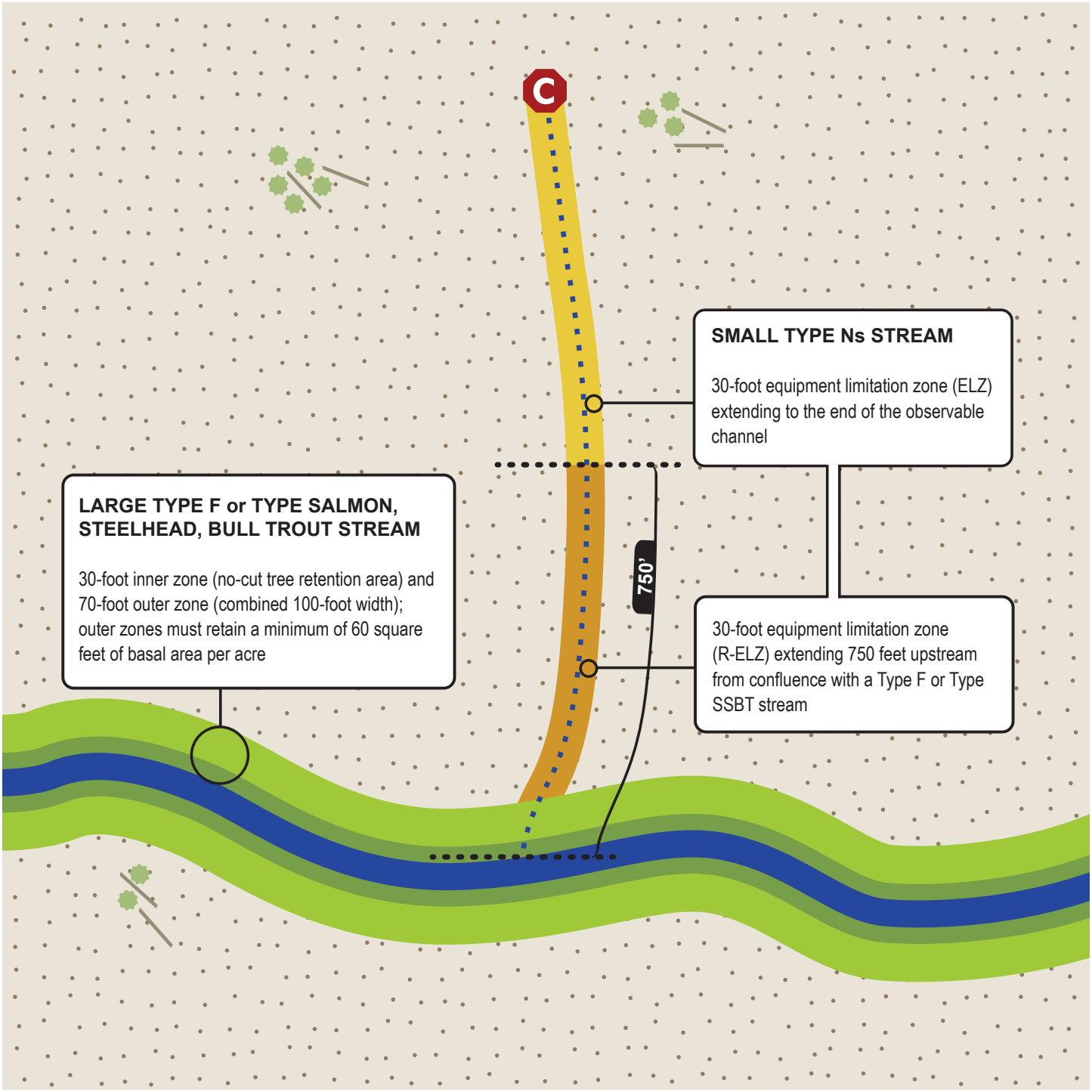
Small Type Ns *flows into* Medium Type F or Type SSBT



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

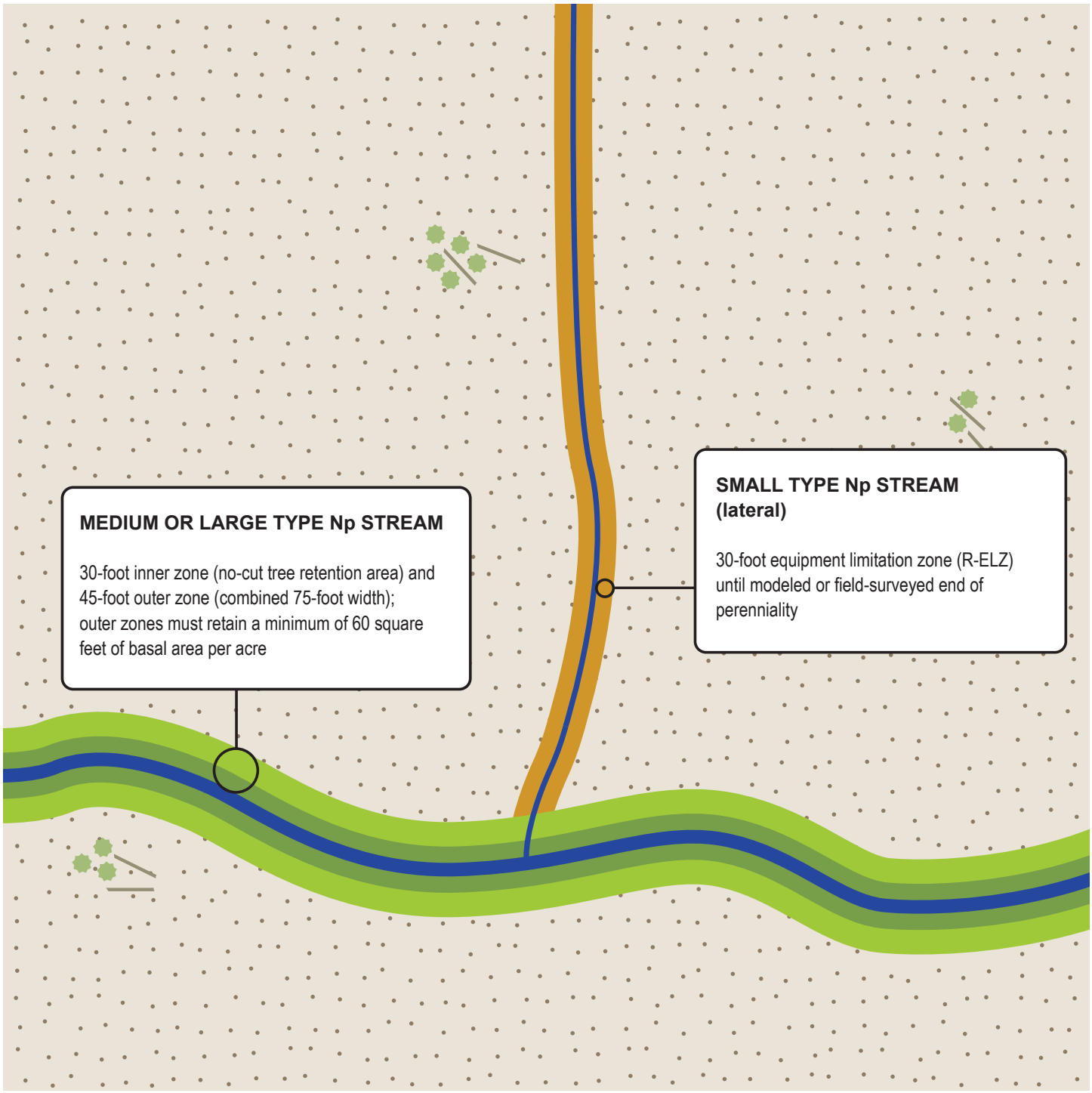
Small Type Ns *flows into* Large Type F or Type SSBT



LEGEND

- End of stream channel
- Dry channel
- Flowing water
- RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

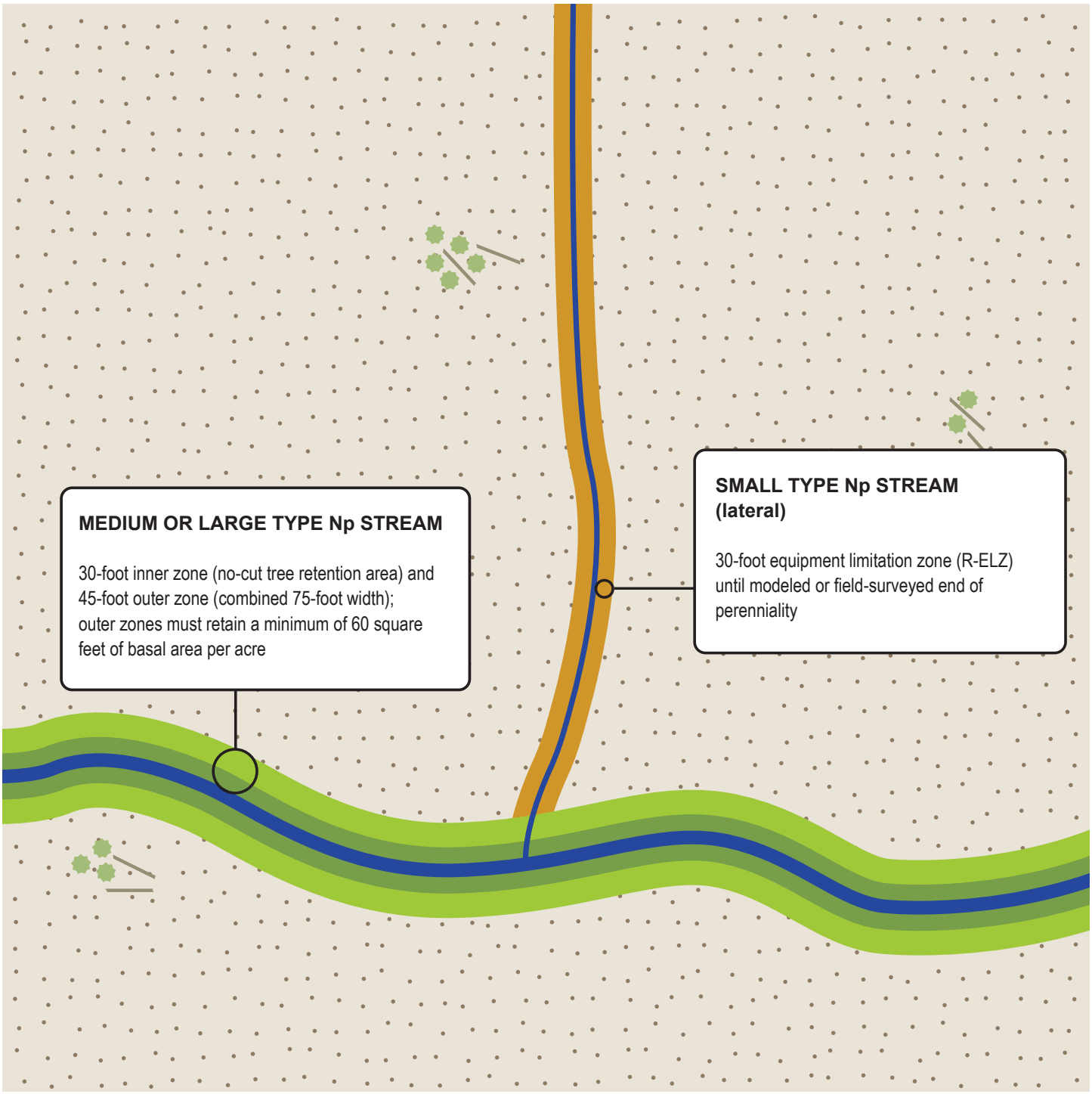
Small Type Np (lateral) *flows into* Medium Type Np



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

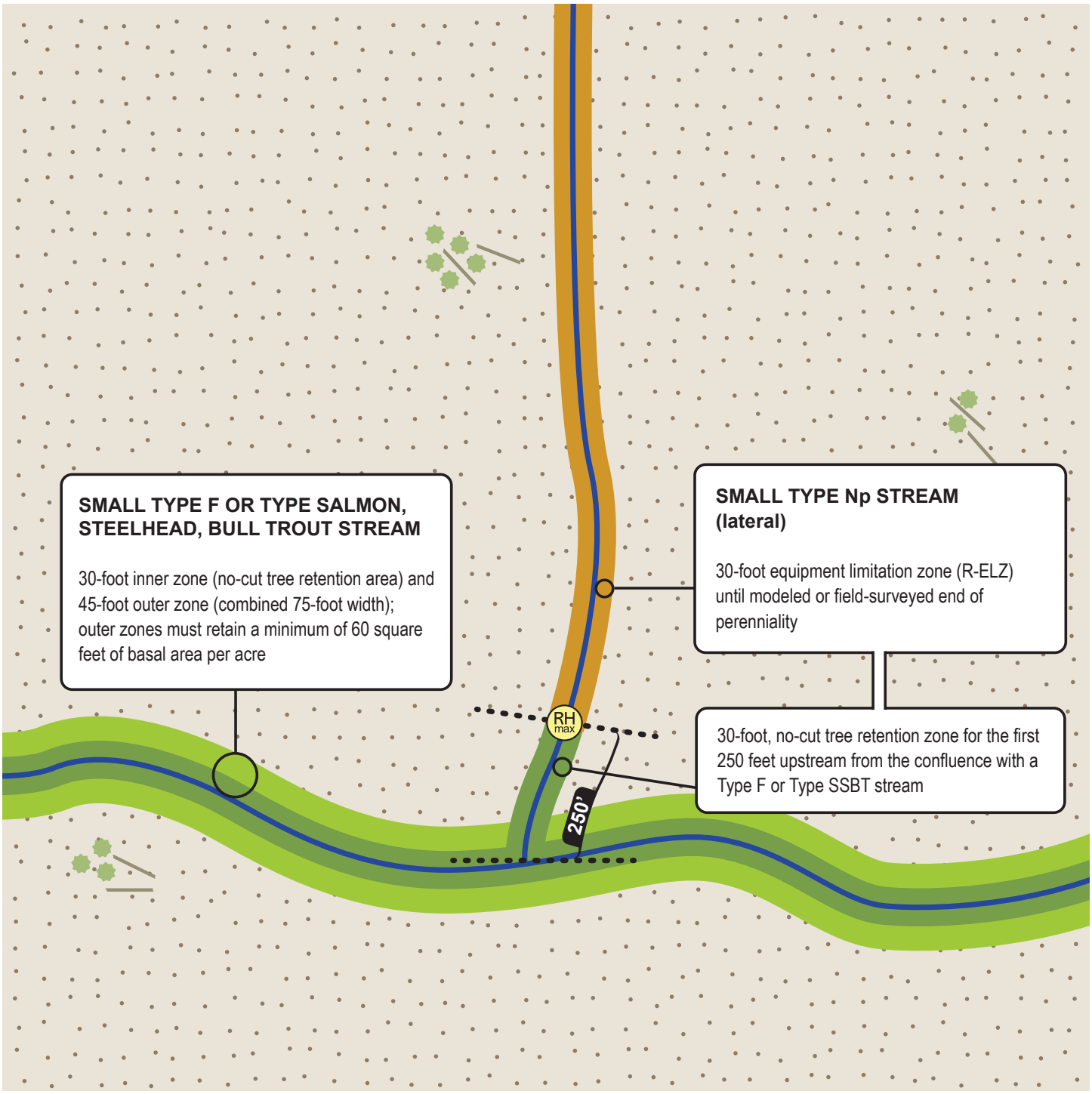
Small Type Np (lateral) *flows into* Large Type Np



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

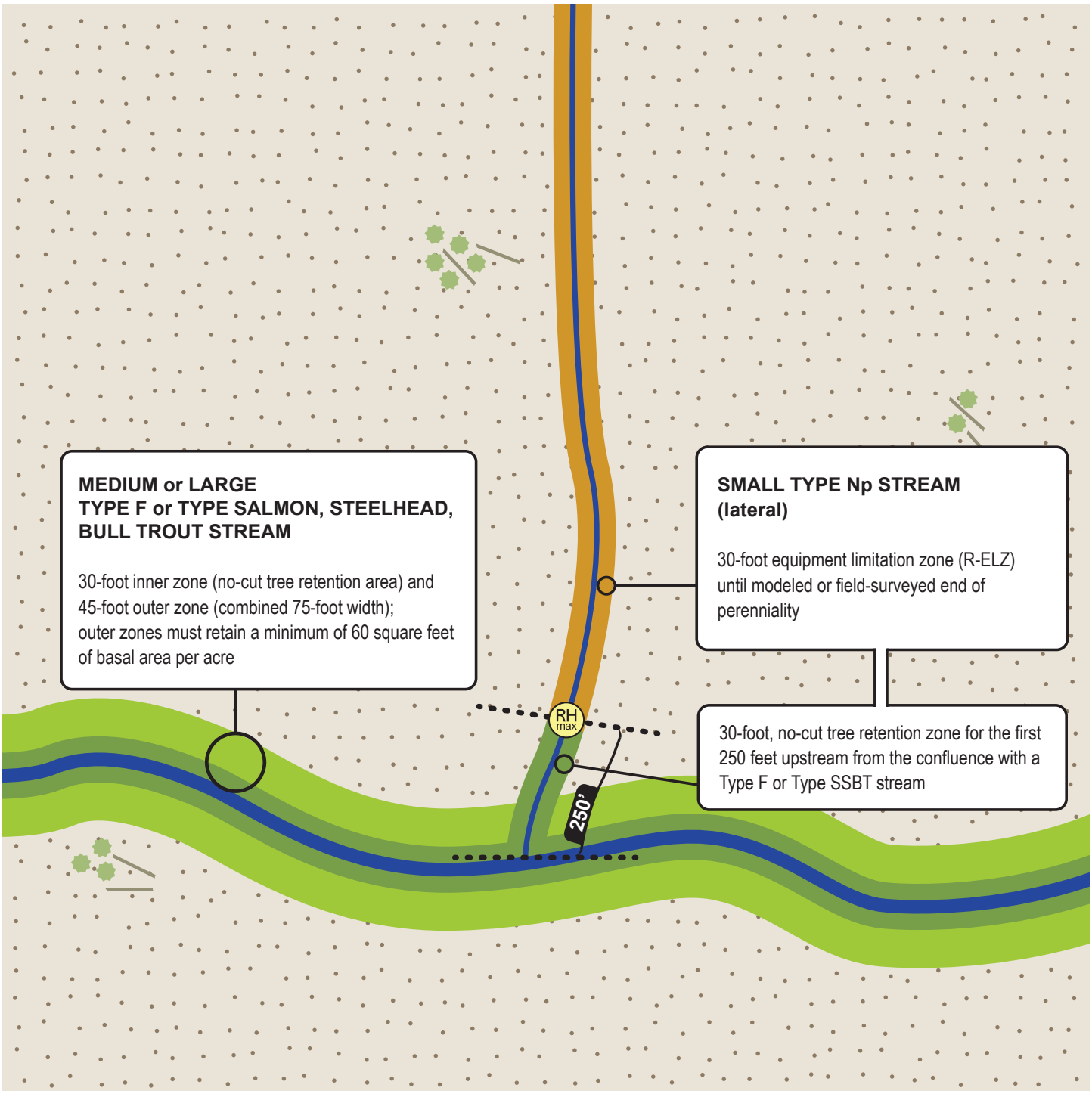
Small Type Np (lateral) *flows into* Small Type F or Type SSBT



LEGEND

- End of stream channel
- Dry channel
- Flowing water
- RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

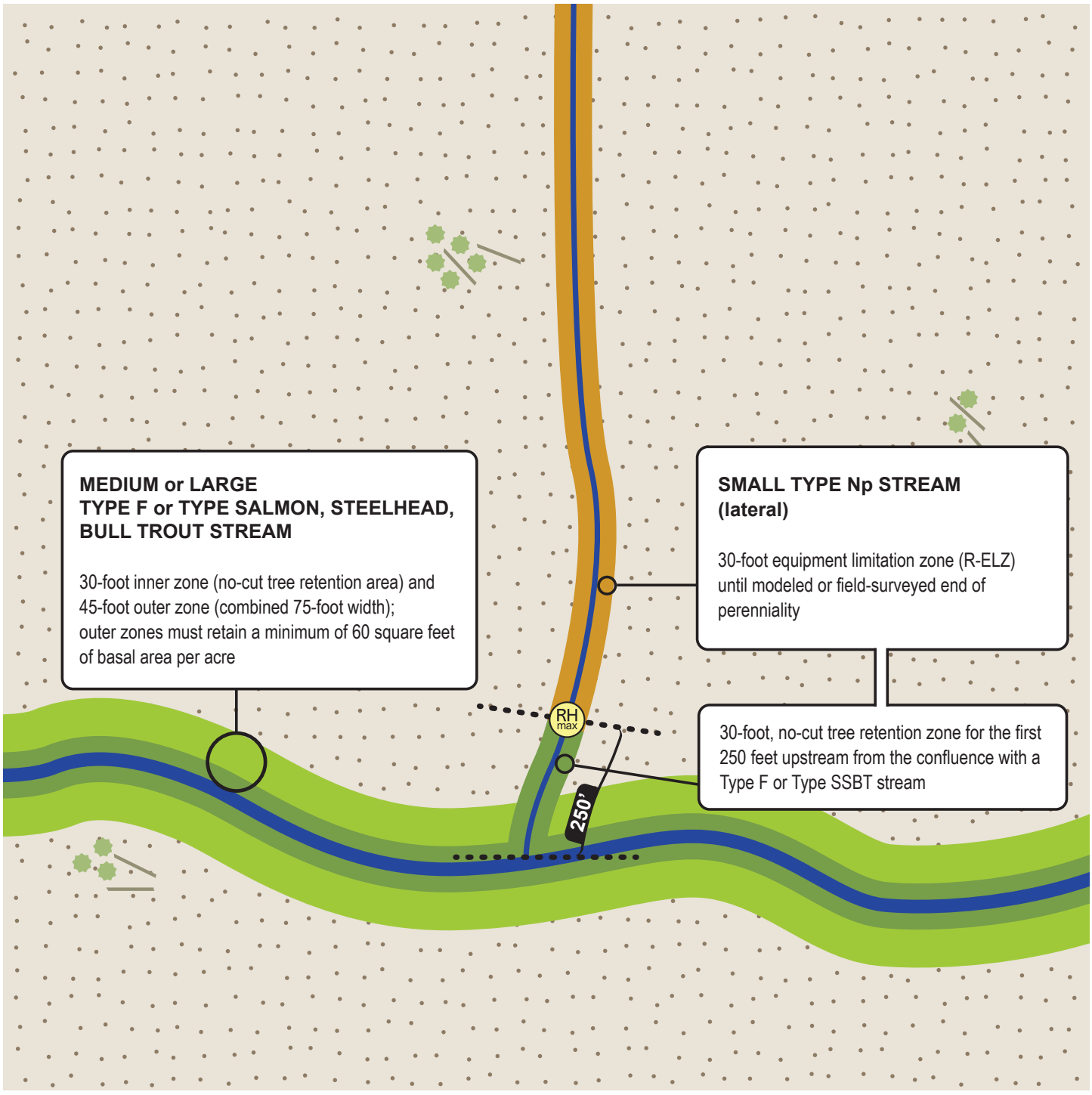
Small Type Np (lateral) *flows into* Medium Type F or Type SSBT



LEGEND

- End of stream channel
- Dry channel
- Flowing water
- RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

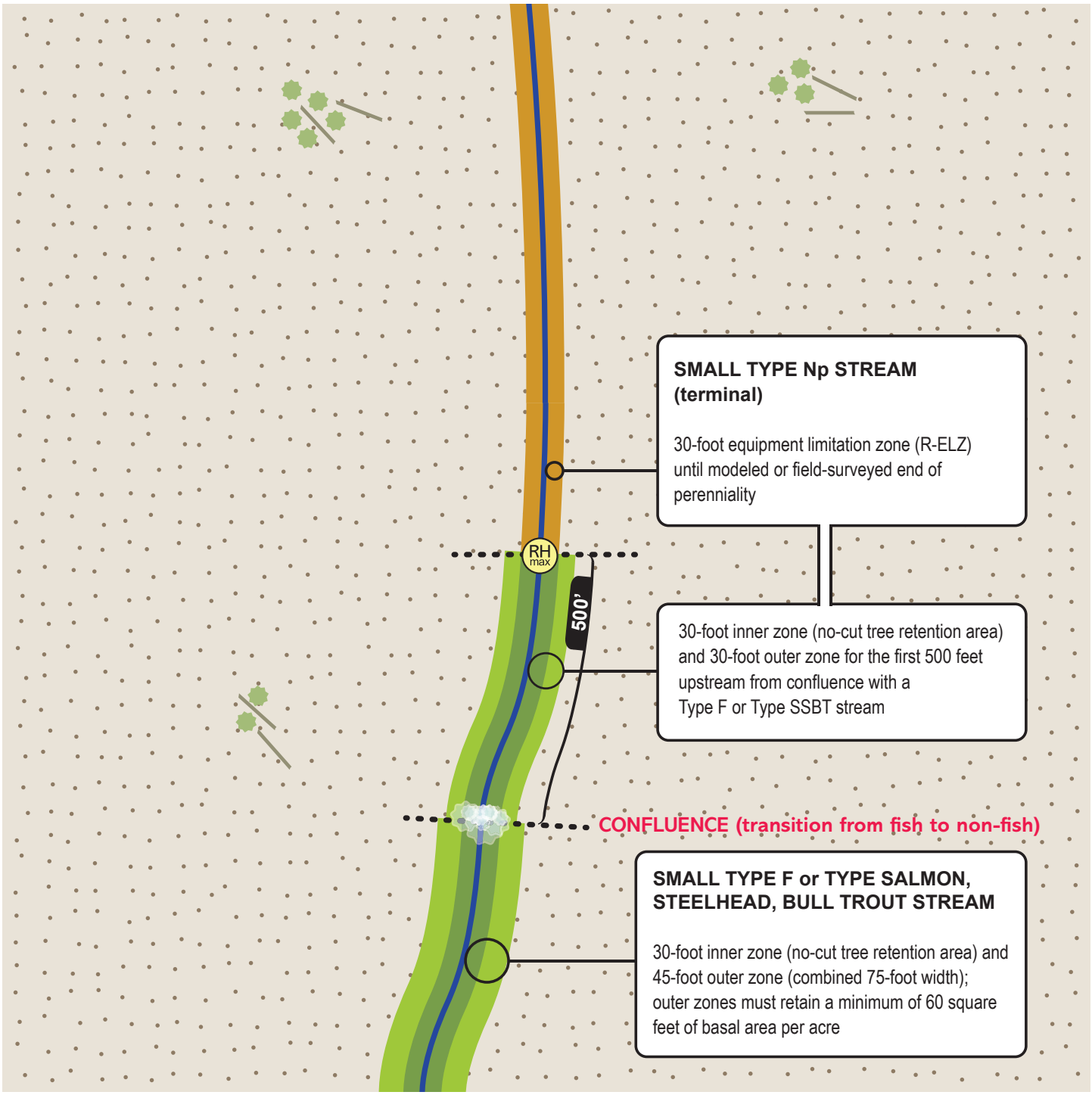
Small Type Np (lateral) *flows into* Large Type F or Type SSBT



LEGEND

- End of stream channel
- Dry channel
- Flowing water
- RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

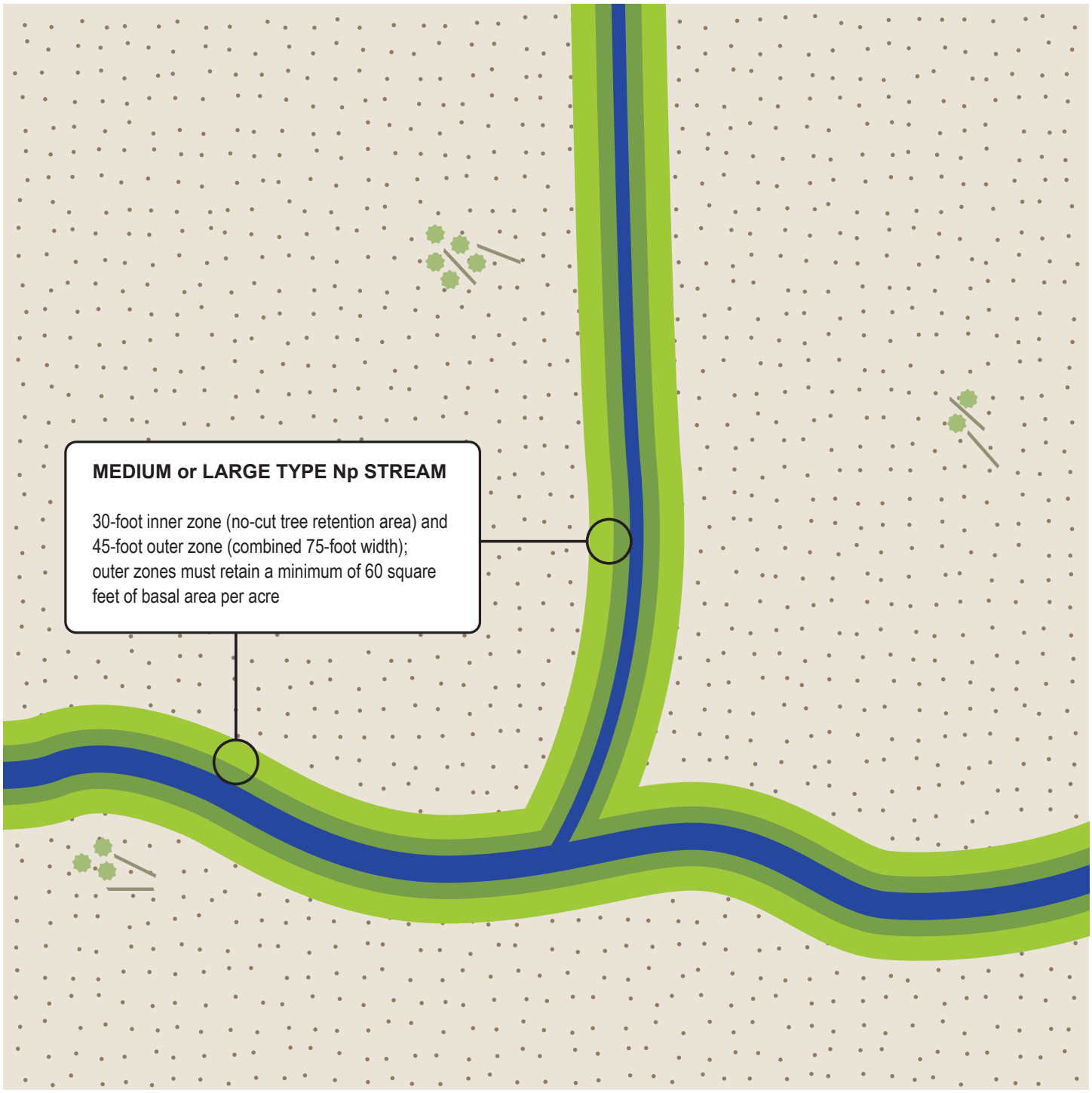
Small Type Np (terminal) *flows into* Small Type F or Type SSBT



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

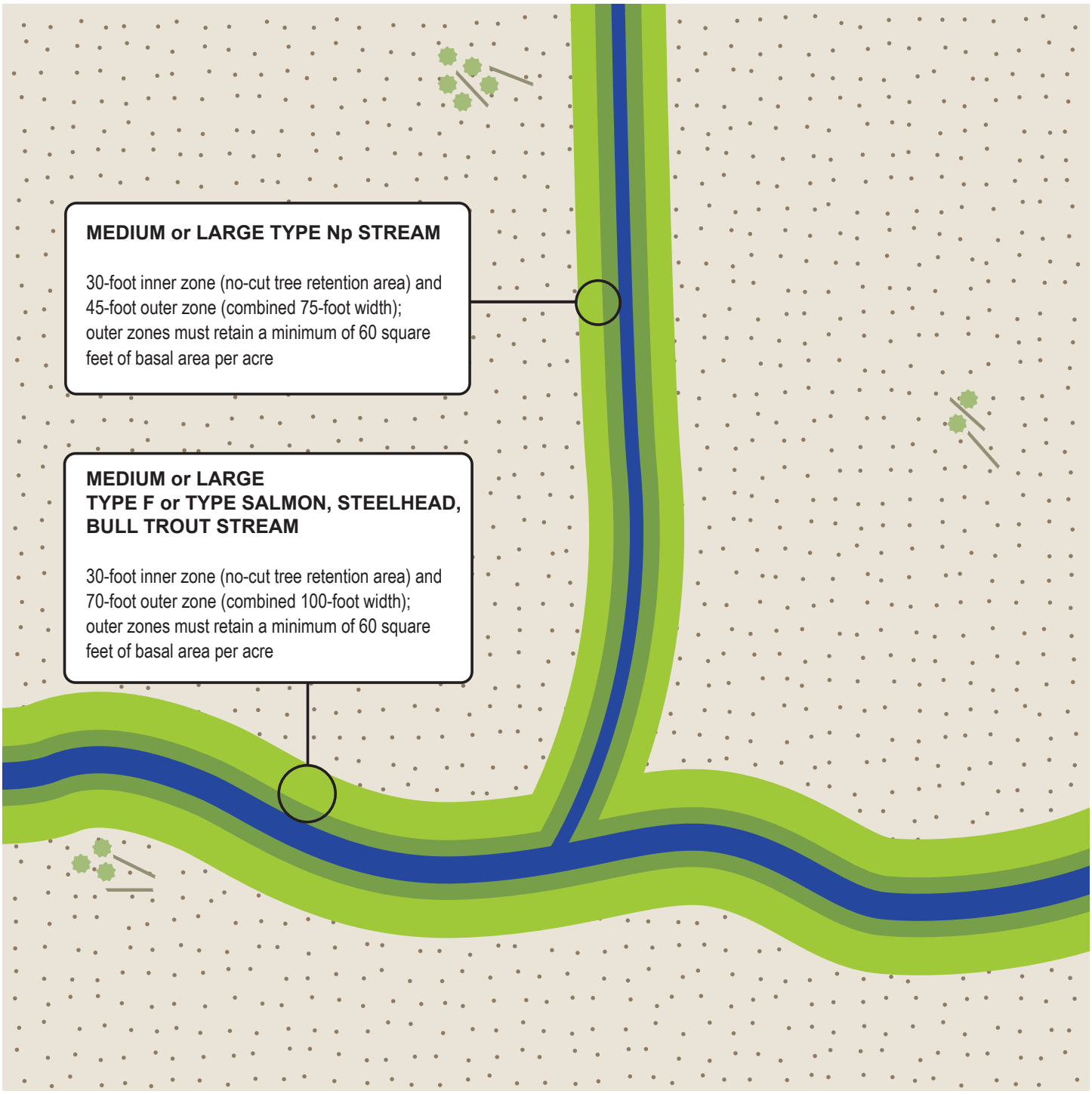
Medium or Large Type Np *flows into* Large Type Np



LEGEND

- End of stream channel
- Dry channel
- Flowing water
- RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

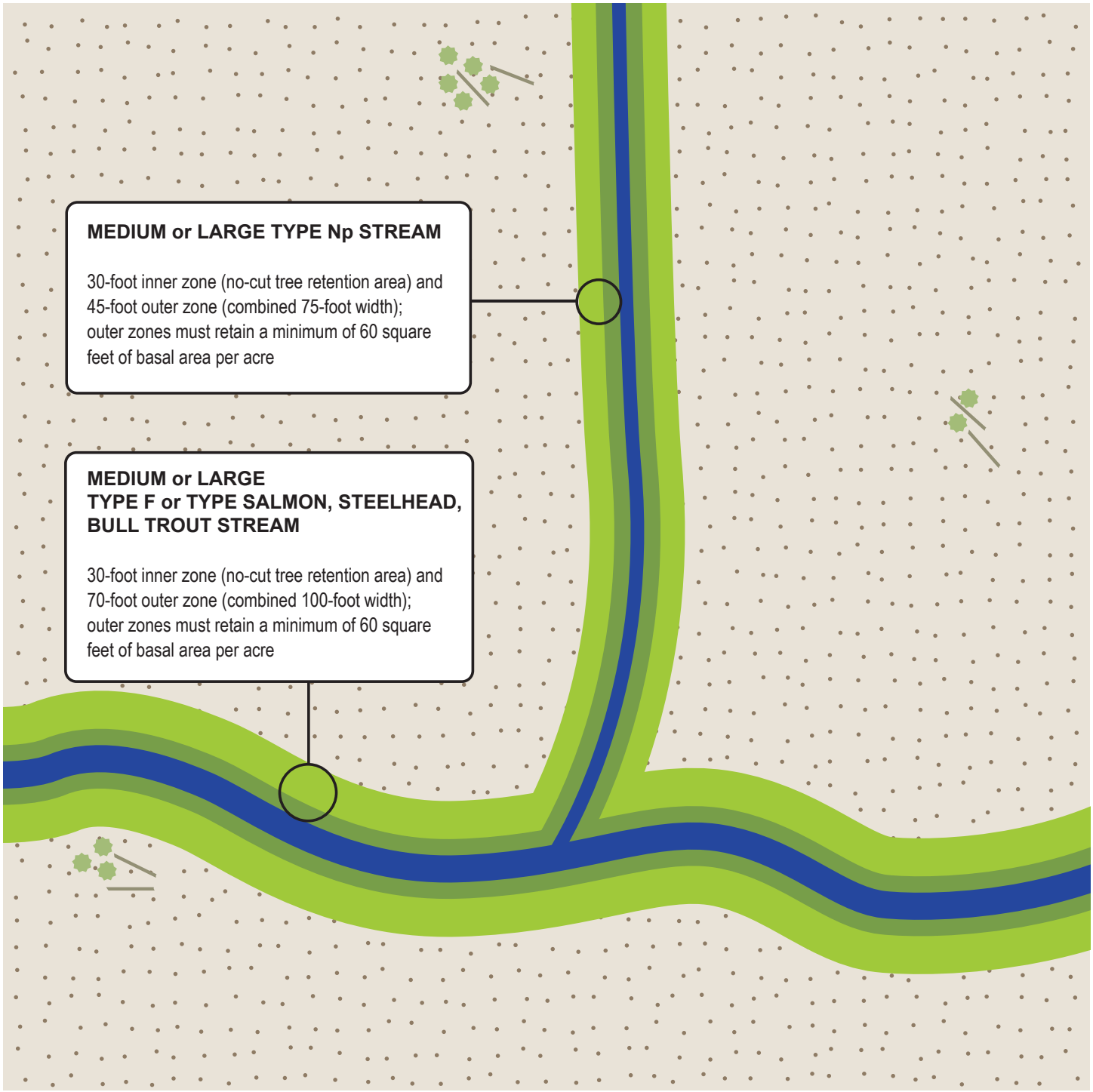
Medium Type Np *flows into* Medium Type F or Type SSBT



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

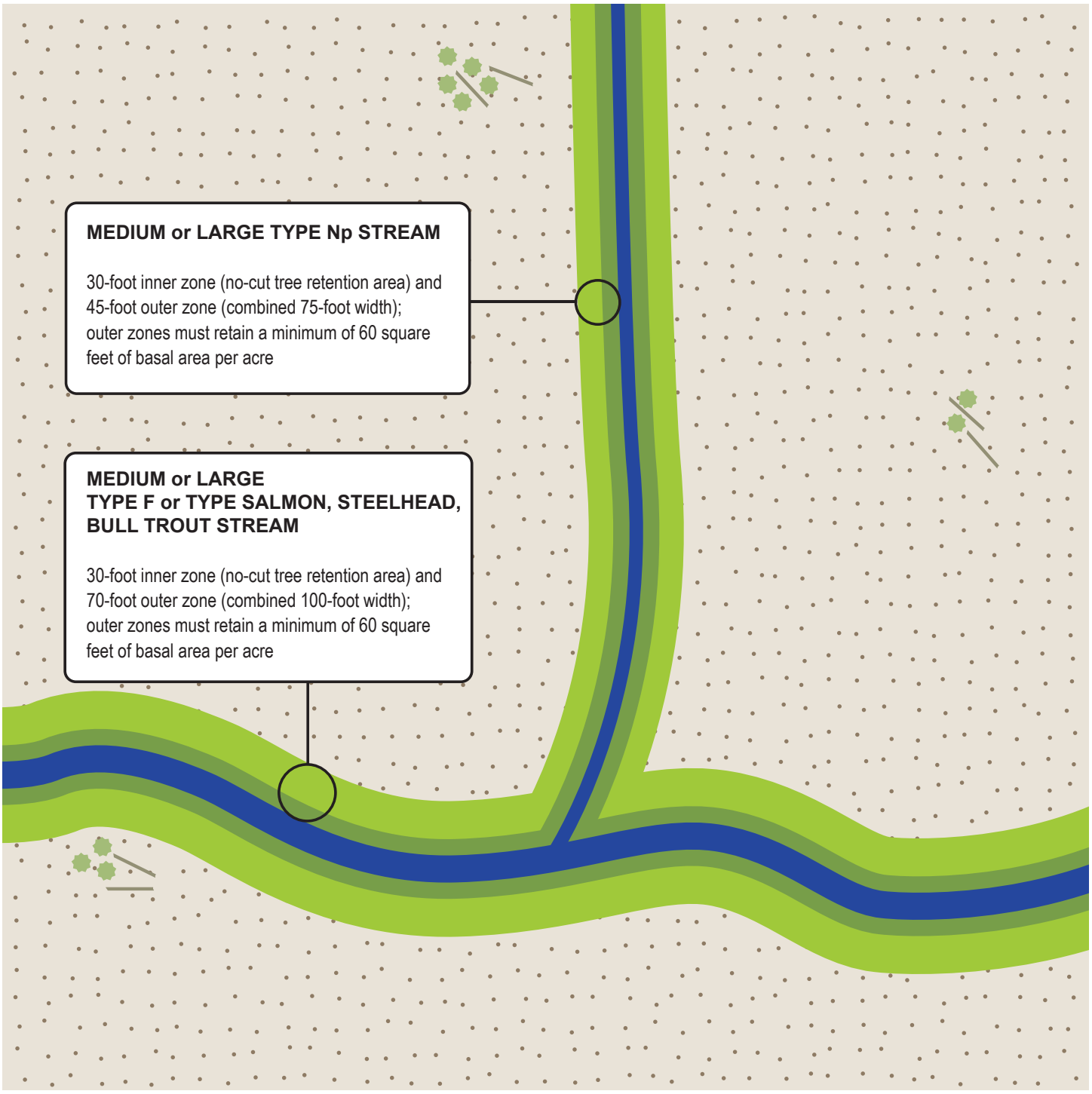
Medium Type Np *flows into* Large Type F or Type SSBT



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

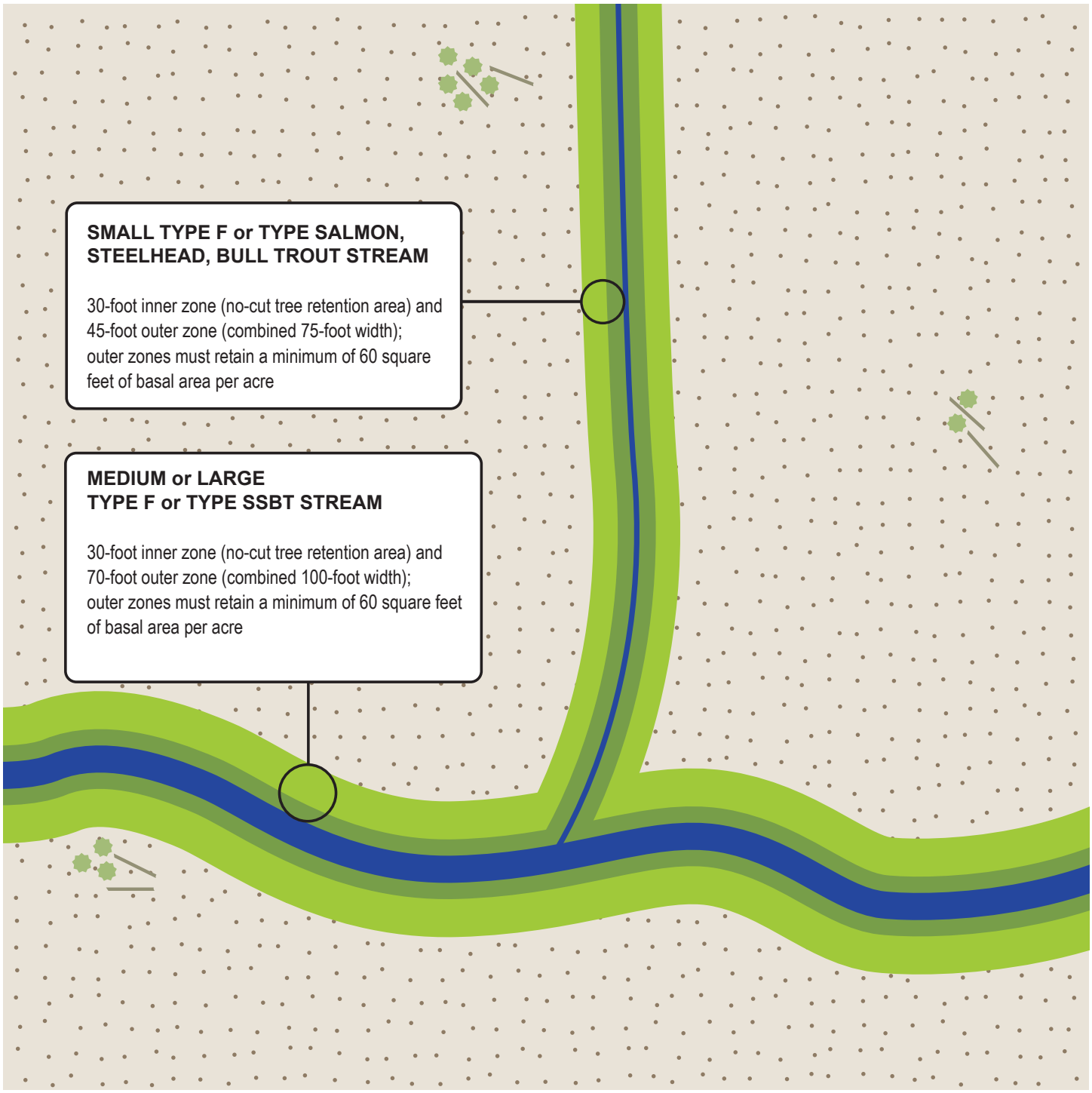
Large Type Np *flows into* Large Type F or Type SSBT



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

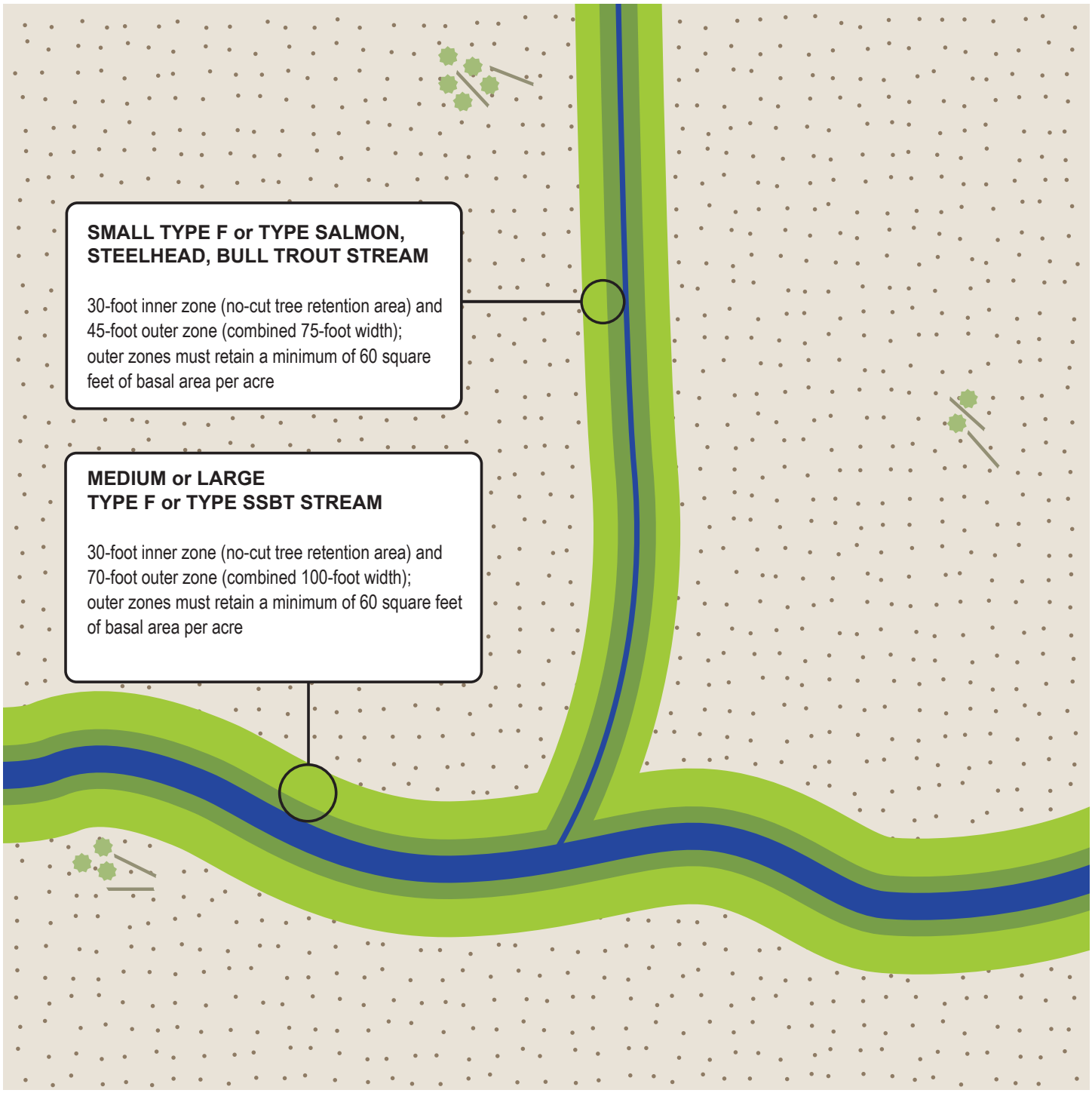
Small Type F or Type SSBT *flows into* Medium Type F or Type SSBT



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

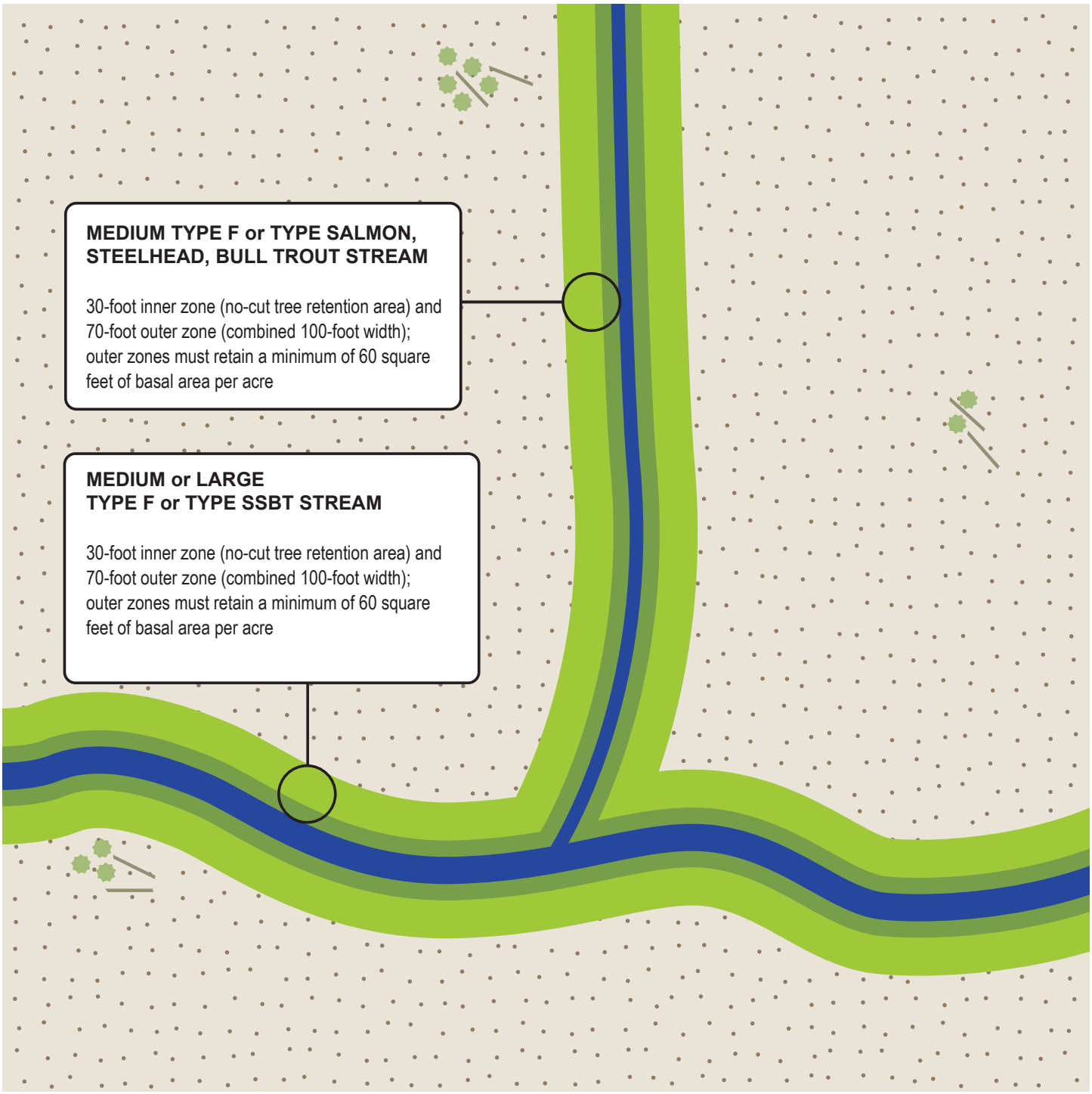
Small Type F or Type SSBT *flows into* Large Type F or Type SSBT



LEGEND

- End of stream channel
- Dry channel
- Flowing water
- RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

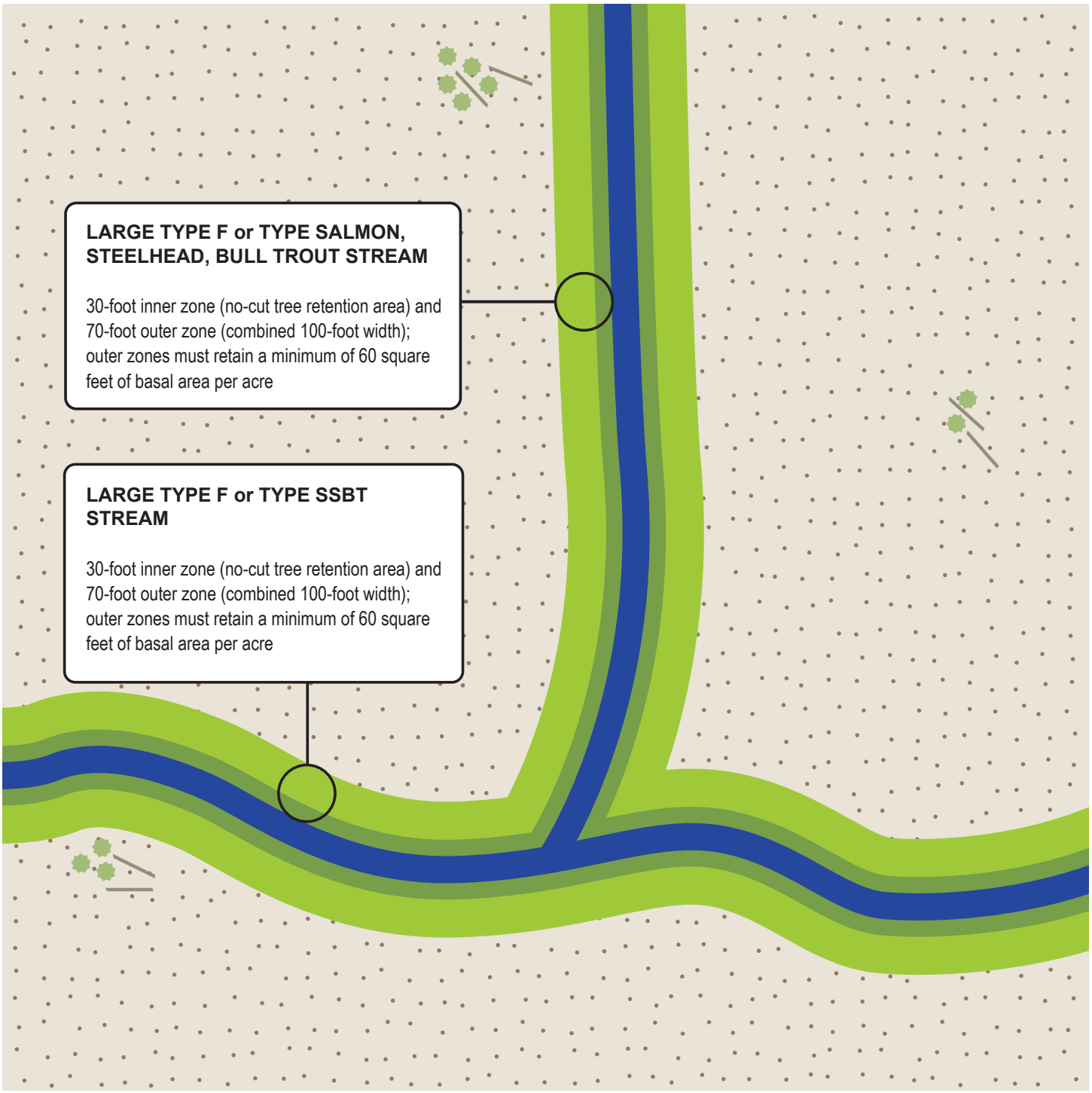
Medium Type F or Type SSBT *flows into* Large Type F or Type SSBT



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

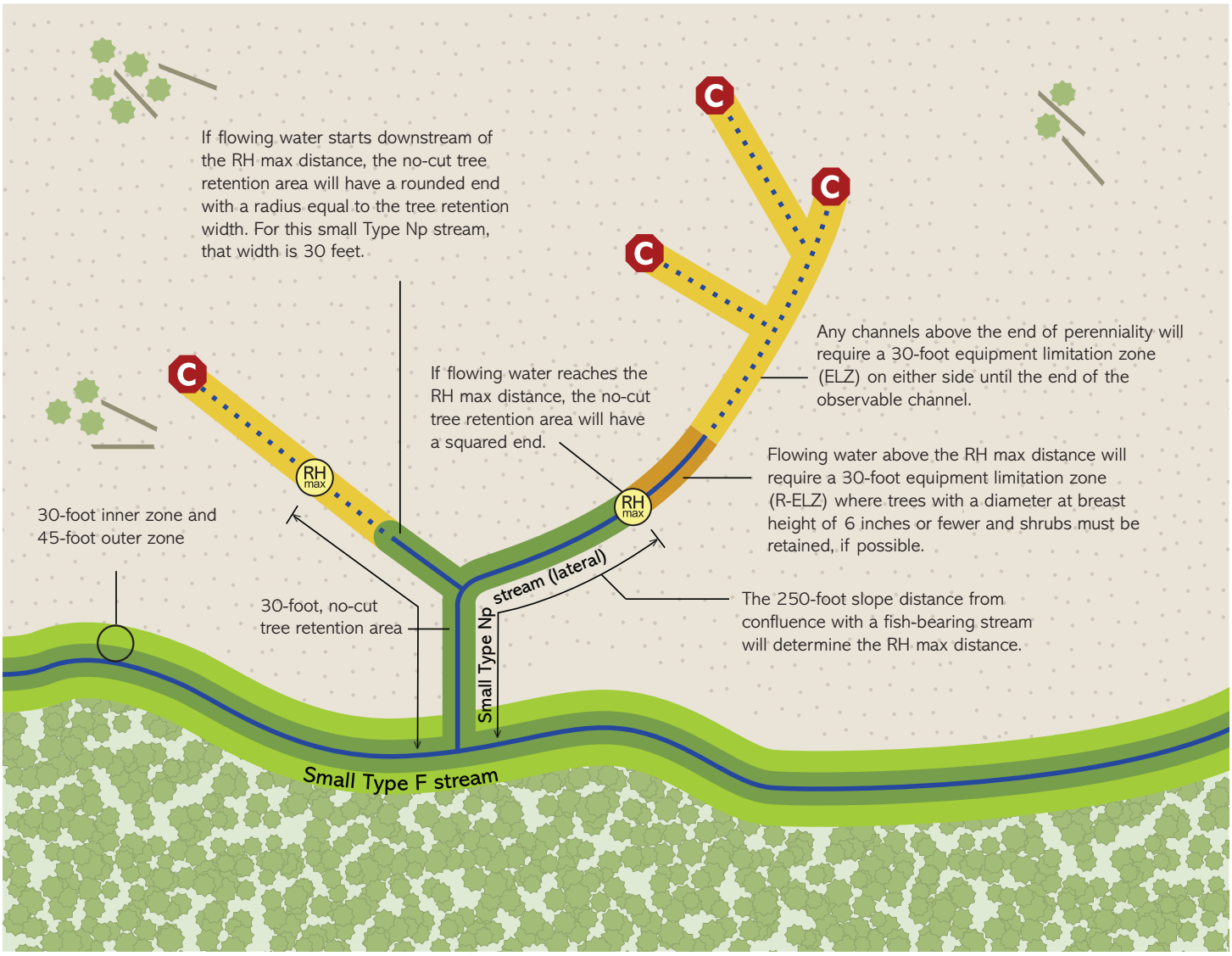
Large Type F or Type SSBT *flows into* Large Type F or Type SSBT



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

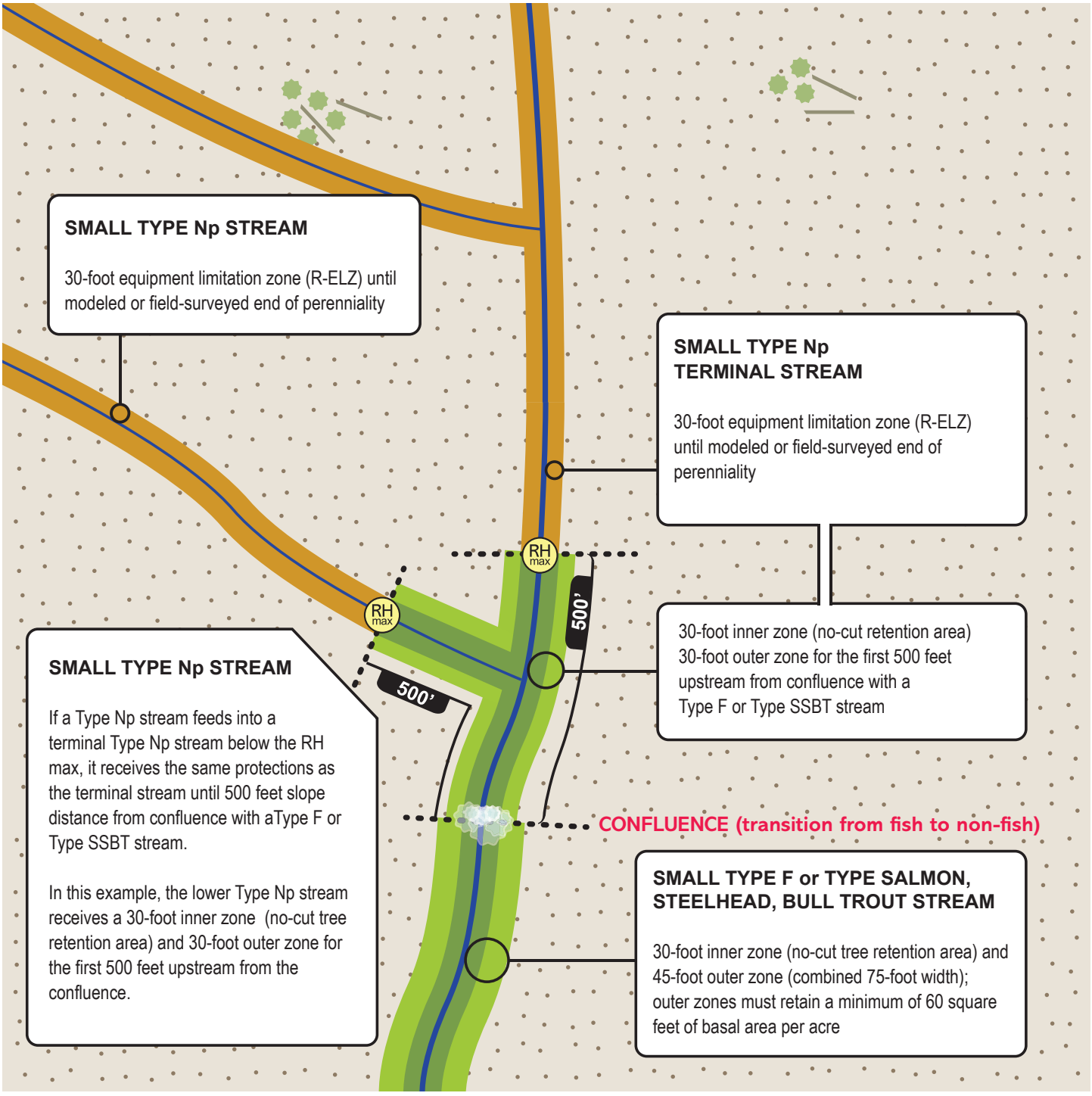
Special consideration: Small Type Np lateral stream fork within RH max



LEGEND

- End of stream channel
- Dry channel
- Flowing water
- RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

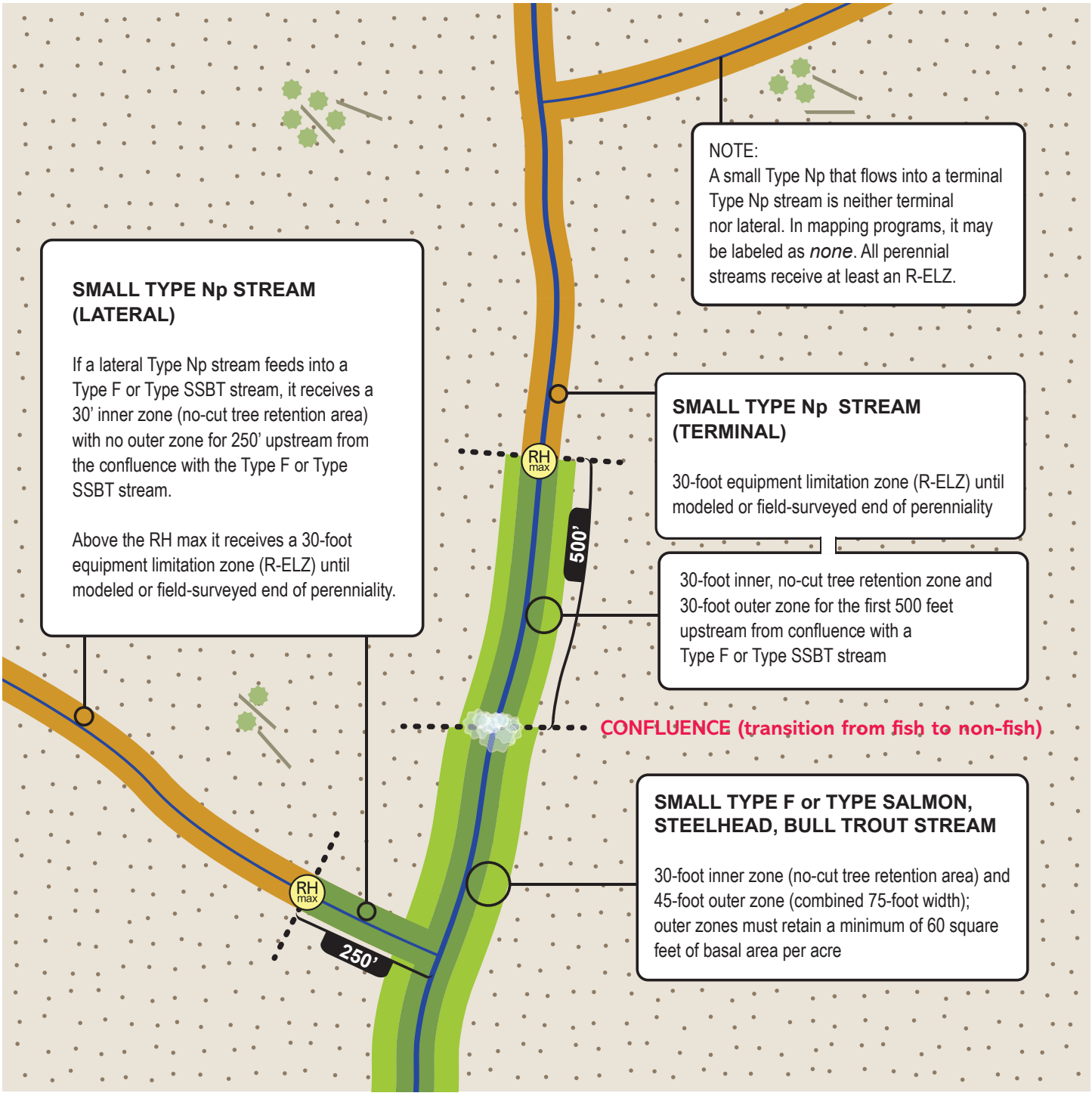
Special consideration: Type Np within 500 feet of a terminal confluence



LEGEND

- C — End of stream channel
- Dry channel
- Flowing water
- RH max — RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

Special consideration: Type Np below terminal confluence



LEGEND

- End of stream channel
- Dry channel
- Flowing water
- RH max
- Inner no-harvest zone
- Outer limited-harvest zone
- ELZ
- R-ELZ

Alternatives for Small Forest Landowners (SFOs)

New rules and regulations reflect the inherent differences in the needs and requirements of SFOs while meeting the overall objectives of the Private Forest Accord agreement. The rules provide two alternative options for riparian area management: a minimum option riparian area prescription specifically for SFOs, and a Forest Conservation Tax Credit incentive offered to SFOs who choose to follow the standard practice prescription.

The minimum option prescription allows SFOs to harvest timber closer to the stream in a riparian area, and to leave a narrower no-cut tree retention area than is required for large forest landowners. The availability of the minimum option is limited by a 5% cap based on the total stream miles owned by all SFOs inside the watershed where the property is located.

FOREST CONSERVATION TAX CREDIT

When harvesting timber, SFOs who choose to leave the standard stream buffer required for large forest landowners (instead of the minimum option buffer) can claim a tax credit based on the value of the timber they have left standing for habitat conservation purposes.

The Forest Conservation Tax Credit will be calculated based on the stumpage value of the additional merchantable timber left unharvested in the "forest conservation area" — a strip of land between the wider buffer required for large forest landowners and the narrower buffer required for SFOs.

To claim the tax credit, SFOs must file the forest conservation area as a deed restriction on their property. Once the tax credit is issued, the current owner of the property and any future owners will be restricted from logging in the stream buffer for a 50-year period.

If the landowner or their heirs decide to log in the stream buffer before the 50-year logging restriction expires, they must repay the state for the portion of the tax credit they've already claimed. If the property changes ownership and the new owner decides to log the area, the new owner must repay the original full amount of the credit.

For more information on this process, please go to:
https://www.oregon.gov/odf/working/documents/faqs-fpa-rules-all-combined.pdf

Eastern Oregon Stream RMA Matrix

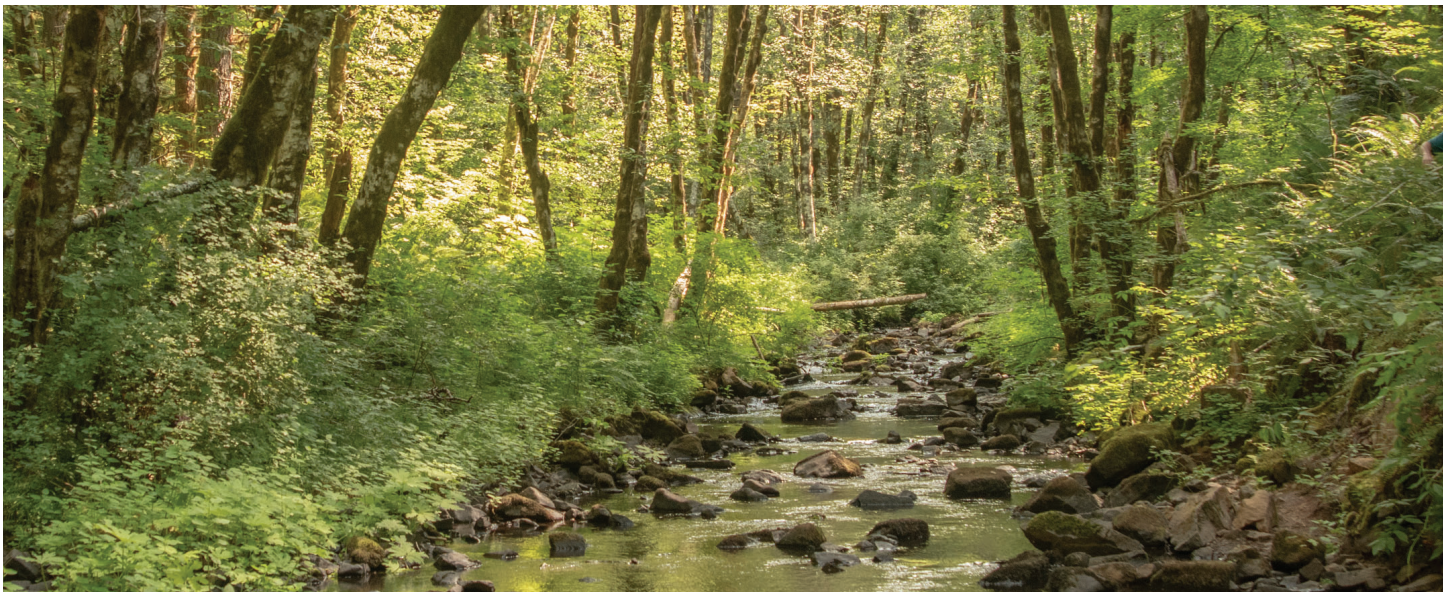
Stream Type	Existing RMA Width	Standard Practice Width		SFO Minimum Option Width		SFO FCC Option Credit Width
		Inner	Outer	Inner	Outer	
Large Type F/SSBT	100'	30'	70'	30'	70'	N/A
Medium Type F/SSBT	80'	30'	70'	30'	50'	Area between 80' & 100'
Small Type F/SSBT	60'	30'	45'	30'	30'	Area between 60' & 75'
Large Type N	70'	30'	45'	30'	45'	N/A
Medium Type N	50'	30'	45'	30'	30'	Area between 60' & 75'
ELZ/R-ELZ			30'	Equipment Limitation Zone of 30 feet apply to all outer zones where applicable		
Small Type Np Terminal into Type F/SSBT	N/A	30'	30'	20'	20'	**Width =** Area between 40' total RMA & the outside edge of the Standard Practice 60' total RMA **Length =** Same as Standard Practice
		Upstream retention distance is the shorter of the RH Max or the uppermost Flow Feature (per protocol). RMA width = 30' inner zone and 30' outer zone for 500 feet of stream length. Total RH Max from confluence with Type F/SSBT is 500'		Upstream retention distance is the shorter of the RH Max or uppermost flow feature. RMA width = 20' inner zone and 20' outer zone. Total RH Max from confluence with Type F/SSBT is 500'		
		The tree retention areas and 30-foot R-ELZ and ELZ apply to each side of the stream as follows: 1. The ELZ's apply to the outer edge of the inner zone and extend out 30 feet. Equipment Limitation Zones with Retention (R-ELZ) are to extend from end of RH Max, upstream to the identified most uppermost flow feature. Tree retention area is squared off at the end of the RH Max in this case. 2. If the uppermost flow feature is determined to be within the RH Max for the stream, the ELZ shall extend upstream to the end of the stream channel. Tree retention area will extend as a radius around the uppermost flow feature and an R-ELZ will not apply in this case.				
Small Type Np Lateral flows into Type F/SSBT	N/A	30'	0'	20'	0'	**Width =** Area between 20' total RMA & the outside edge of the Standard Practice 30' total RMA **Length =** Same as Standard Practice
		Upstream retention distance is the shorter of the RH Max or the uppermost Flow Feature (per protocol). RMA width = 30' inner zone with no outer zone. Total RH Max is 250 feet from the confluence with the Type F/SSBT stream.		Upstream retention distance is the shorter of the RH Max or uppermost flow feature. RMA width = 20' inner zone with no outer zone. Total RH Max is 250 feet from confluence with the Type F/SSBT stream.		
		The tree retention areas and a 30-foot-wide R-ELZ and/or ELZ apply to each side of the stream as follows: 1. Equipment Limitation Zones with Retention (R-ELZ) are to extend from end of RH Max, upstream to the identified uppermost flow feature. The end of the tree retention area is squared off at the end of the RH Max in this case. 2. If the uppermost flow feature is determined to be within the RH Max for the stream, the ELZ shall extend upstream to the end of the stream channel. Tree retention area will extend as a radius around the uppermost flow feature and an R-ELZ will not apply in this case.				
Small Type Ns flowing into a Type F/SSBT	N/A	30-foot R-ELZ extending 750 feet upstream from confluence. ELZ applies on remainder of channel.		30-foot R-ELZ extending 750 feet upstream from confluence. ELZ applies on remainder of channel.		N/A
Small Type Ns	N/A	30' ELZ from edge of inner zone extending out		30' ELZ from edge of inner zone extending out		N/A

Note: Fish use stream buffers go into effect July 1st, 2023 for large landowners that submit notifications on or after July 1, 2023, otherwise new rules apply to all landowners January 1, 2024.

RH Max - The maximum tree retention distance described for any particular small Type Np Stream that flows into a Type F/SSBT stream.

ELZ - Equipment limitation zone. Minimize soil disturbance. Take corrective action to restore lost function if soil disturbance is >10% ground-based equipment, >20% cable yarding.

R-ELZ - Equipment limitation zone. Retain trees <6" DBH and shrubs where possible. Minimize soil disturbance. Take corrective actions to restore lost function if soil disturbance is >10% ground-based equipment, >20% cable yarding in which disturbance from equipment shall be minimized & all trees less than 6" DBH and shrubs are retained where possible, widths are measured as slope distance from the edge of the active channel or channel migration zone, if present.



DEVELOPED BY THE OREGON FOREST RESOURCES INSTITUTE

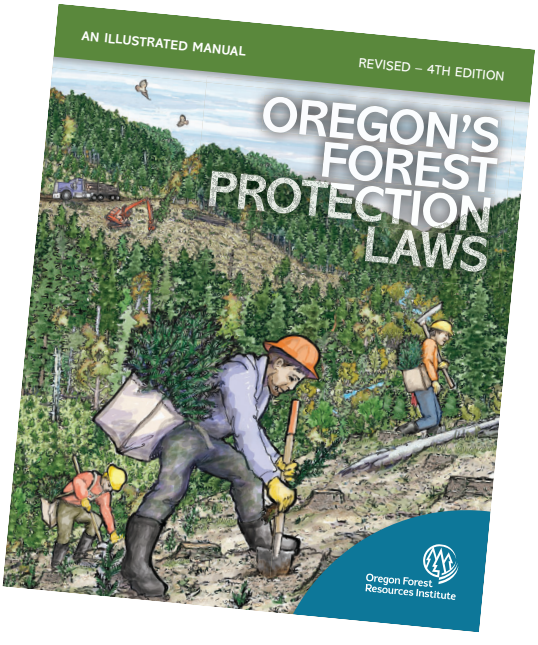
The Oregon Legislature created the Oregon Forest Resources Institute (OFRI) in 1991 to support the state's forest sector and the stewardship of natural resources by advancing Oregonians' understanding of the social, environmental and economic benefits of Oregon's forests. OFRI is governed by a board made up of 11 voting members appointed by the state forester, plus two non-voting members. It is funded by a portion of the forest products harvest tax.

ADDITIONAL RESOURCES

For more forest management information and resources, please visit the Partnership for Forestry Education's website: **KnowYourForest.org**

For more details on the state laws and rules regulating forestry practices on Oregon's private forests, including new riparian rules effective Jan. 1, 2024, please visit the Oregon Department of Forestry website: **oregon.gov/odf/pages/lawsrules.aspx**

Look for these diagrams inside the upcoming revised fourth edition of *Oregon's Forest Protection Laws — An Illustrated Manual*.



Oregon Forest Resources Institute

OregonForests.org