Introduction to Hudson Valley Habitats and Biodiversity Conservation
Thursday, March 2, 2023, 1:00-2:30 p.m.

Hudson River Estuary Program
Conservation and Land Use Webinar Series

2 "Christine Vanderlan" (1024215808)
00:00:03.989 --> 00:00:14.549
My name is Christine Vanderlan, and I am a conservation and land use specialist with the Hudson River Estuary Program through a partnership with Cornell University.

3 "Christine Vanderlan" (1024215808)
00:00:14.549 --> 00:00:21.810
Today's webinar will provide an introduction to biodiversity in the Hudson Valley with a focus on habitats.

4 "Christine Vanderlan" (1024215808)
00:00:21.810 --> 00:00:31.290
Our speakers will be presenting key characteristics of major Hudson Valley habitats, their importance to common and imperiled species,

5 "Christine Vanderlan" (1024215808)
00:00:31.290 --> 00:00:37.680
current threats, look at the benefits of intact habitats for Hudson Valley communities,

6 "Christine Vanderlan" (1024215808)
00:00:37.680 --> 00:00:49.050
review biodiversity conservation principles, existing state and federal protection, and local strategies for conserving nature through land-use planning, policy, and decision making.

7 "Christine Vanderlan" (1024215808)
00:00:49.050 --> 00:00:55.920
Before I introduce our speakers will review a few webinar logistics.

8 "Christine Vanderlan" (1024215808)
00:00:55.920 --> 00:01:00.000
Advance my slide,

9 "Christine Vanderlan" (1024215808)
00:01:00.000 --> 00:01:11.400
if it will go…there. Great. So there are options for your audio connection. If you are having difficulty with the audio connection through your computer.

10 "Christine Vanderlan" (1024215808)
00:01:11.400 --> 00:01:22.410
You can choose to switch audio by clicking the 3 dots next to the red exit button at the bottom of the screen in there. You will see the options to request a call back.

11 "Christine Vanderlan" (1024215808)
00:01:22.410 --> 00:01:25.950
Or call in by phone.

12 "Christine Vanderlan" (1024215808)
00:01:26.970 --> 00:01:30.990
If you need help, please reach out via the chat.

13 "Christine Vanderlan" (1024215808)
00:01:30.990 --> 00:01:34.945
And the icon for the chat is in the bottom, right corner of the screen.

14 "Christine Vanderlan" (1024215808)
00:01:35.395 --> 00:01:47.575
If you have questions for the speakers, once they begin, please use the Q and A,. If that's not visible on your screen right now, you can click the 3 dots next to chat in the bottom right corner of your screen.

15 "Christine Vanderlan" (1024215808)
00:01:49.285 --> 00:02:00.415
Your phone lines are muted. The webinar is being recorded and we will notify you when the recording is available, likely sometime next week. At the end of the webinar we

16 "Christine Vanderlan" (1024215808)
00:02:00.990 --> 00:02:15.930
request your feedback through a short survey that will pop up automatically, and for those seeking municipal training credits, you will receive an automatic email confirmation of attendance from Webex at the end of the program.

17 "Christine Vanderlan" (1024215808)
00:02:17.910 --> 00:02:27.270
For those of you who may be new to the series the Hudson River Estuary Program is a special program at the Department of Environmental Conservation

18 "Christine Vanderlan" (1024215808)
00:02:27.270 --> 00:02:33.090
established to help people enjoy, protect, and revitalize the Hudson River and its Valley.

19 "Christine Vanderlan" (1024215808)
00:02:33.415 --> 00:02:47.695

We work throughout the 10 counties, bordering the tidal Hudson, shown here on the map, to achieve many key benefits, including the vital estuary ecosystem, clean water, healthy tributary streams, climate-

20 "Christine Vanderlan" (1024215808)
00:02:47.695 --> 00:02:51.595
adaptive communities, conserved natural areas in the watershed.

21 "Christine Vanderlan" (1024215808)
00:02:51.900 --> 00:02:57.480
And informed and engaged public, and access for all to the Hudson River.

22 "Christine Vanderlan" (1024215808)
00:02:57.480 --> 00:03:09.030
Within the program, our conservation and land use team works with municipalities

23 "Christine Vanderlan" (1024215808)
00:03:09.030 --> 00:03:14.550
and regional conservation partners who are working to conserve important habitats and natural areas.

24 "Christine Vanderlan" (1024215808)
00:03:14.550 --> 00:03:27.300
Through local land-use planning and decision making. Ingrid, one of our speakers today, and myself are available to provide technical assistance on a variety of conservation planning and policy projects.

25 "Christine Vanderlan" (1024215808)
00:03:27.300 --> 00:03:30.300
And our program web site, shown here,

26 "Christine Vanderlan" (1024215808)
00:03:30.300 --> 00:03:34.290
is a clearinghouse for guidance and resources on these topics.

27 "Christine Vanderlan" (1024215808)
00:03:34.290 --> 00:03:45.415
And that link is in the chat box and with that, I'm very pleased to introduce our speakers, Ingrid Haeckel, a conservation and land use specialist here at the Estuary Program.

28 "Christine Vanderlan" (1024215808)
00:03:46.015 --> 00:03:50.845
She provides education and technical assistance to municipal and regional partners

29 "Christine Vanderlan" (1024215808)
00:03:51.090 --> 00:04:03.000

to promote conservation of important natural areas in the Hudson Valley. Ingrid holds degrees in environmental biology and geography, and has been with the Estuary Program for 9 years.

30 "Christine Vanderlan" (1024215808)
00:04:03.000 --> 00:04:08.430
Gretchen Stevens is the director of the Biodiversity Resources Center

31 "Christine Vanderlan" (1024215808)
00:04:08.430 --> 00:04:15.930
At Hudsonia, which is a nonprofit environmental research and education institute that's based in Dutchess county.

32 "Christine Vanderlan" (1024215808)
00:04:15.930 --> 00:04:27.929
Gretchen has over 35 years of experience as a field biologist and Hudsonia has been a long time partner of ours in delivering educational programs to land-use decision makers

33 "Christine Vanderlan" (1024215808)
00:04:27.929 --> 00:04:38.369
and interested citizens. We will have a few moments for questions and answers after each speaker concludes.

34 "Christine Vanderlan" (1024215808)
00:04:38.369 --> 00:04:45.899
I wanted to note that recordings of our prior webinars are available online so you can access those,

35 "Christine Vanderlan" (1024215808)
00:04:45.899 --> 00:04:50.939
and today's will be added. And in

36 "Christine Vanderlan" (1024215808)
00:04:50.939 --> 00:04:54.899
a few weeks we have our next webinar in the series

37 "Christine Vanderlan" (1024215808)
00:04:54.899 --> 00:05:09.119
focused on conservation subdivisions, with Ted Fink of GREENPLAN and John Lyons, an attorney, to present some examples and case studies and explore best practices around conservation subdivisions.

38 "Christine Vanderlan" (1024215808)
00:05:12.449 --> 00:05:15.929
So, I'm going to stop sharing my slides.

39 "Christine Vanderlan" (1024215808)

00:05:15.929 --> 00:05:19.979
And invite Ingrid to take over.

40 "Ingrid Haeckel" (1813459200)
00:05:19.979 --> 00:05:24.959
Thanks, Christine. Are you seeing that?

41 "Ingrid Haeckel" (1813459200)
00:05:24.959 --> 00:05:29.549
Slides are up. Yeah great.

42 "Ingrid Haeckel" (1813459200)
00:05:29.574 --> 00:05:37.494
Okay, well, thank you and thanks to everyone for joining us today. Before I dive into this presentation,

43 "Ingrid Haeckel" (1813459200)
00:05:37.494 --> 00:05:45.744
I just want to quickly apologize for my snafu trying to reschedule the original webinar from 2 weeks ago and any confusion that may have caused.

44 "Ingrid Haeckel" (1813459200)
00:05:46.104 --> 00:05:57.234
Webex didn't send out my intended message about rescheduling and somehow I inadvertently erased all files from the event, which is not what I wanted to do, but anyway, glad you made it

45 "Ingrid Haeckel" (1813459200)
00:05:57.539 --> 00:06:04.799
back here today, and I'm looking forward to presenting this introduction to major habitats in the Hudson Valley.

46 "Ingrid Haeckel" (1813459200)
00:06:06.419 --> 00:06:09.449
So, I'm going to start off with a few definitions.

47 "Ingrid Haeckel" (1813459200)
00:06:09.449 --> 00:06:24.174
A habitat is simply the place where a plants or animal lives, or where a natural community occurs, and habitats are defined according to their biological components, such as the vegetation and wildlife as well as the physical environment,

48 "Ingrid Haeckel" (1813459200)
00:06:24.414 --> 00:06:28.944
such as bedrock, soils, hydrology, and climate conditions.

49 "Ingrid Haeckel" (1813459200)
00:06:29.249 --> 00:06:40.799
Every plant, or animal species is adapted to particular habitats, and many animals depend on more than one habitat to meet their life history needs like nesting, forging, and overwintering.

50 "Ingrid Haeckel" (1813459200)
00:06:42.119 --> 00:06:53.724
And so, while it's true, that lawns or cultivated fields, and other intensively managed areas can also be habitats, natural areas that are unmanaged or minimally managed,

51 "Ingrid Haeckel" (1813459200)
00:06:53.844 --> 00:06:58.164
have the greatest importance for native species and can be thought of as ecologically

52 "Ingrid Haeckel" (1813459200)
00:06:58.164 --> 00:07:09.144
significant habitats, and these include common habitats like forests and swamps as well as uncommon and rare habitats fens and acidic bogs.

53 "Ingrid Haeckel" (1813459200)
00:07:09.719 --> 00:07:16.019
We won't have time to discuss rare habitats today, but I will share information about where you can learn more.

54 "Ingrid Haeckel" (1813459200)
00:07:17.819 --> 00:07:22.559
And we tend to use the term habitat synonymously with “natural community”.

55 "Ingrid Haeckel" (1813459200)
00:07:22.559 --> 00:07:30.989
Though they do have slightly different meetings. A natural community is the recurring group of plants and animals that share a common habitat or environment.

56 "Ingrid Haeckel" (1813459200)
00:07:33.444 --> 00:07:45.624
The natural communities are one element of biodiversity, which is a term that encompasses the variety of life in all its forms, including all of the plants, animals, fungi, bacteria, and other organisms,

57 "Ingrid Haeckel" (1813459200)
00:07:45.894 --> 00:07:53.994
the genetic diversity within species and populations as well as the diversity of natural communities that constitute the environment.

58 "Ingrid Haeckel" (1813459200)

00:07:54.329 --> 00:07:59.519
Biodiversity is fundamental to the processes that sustain life on earth.

59 "Ingrid Haeckel" (1813459200)
00:07:59.519 --> 00:08:06.479
And I'm going to be sharing examples of benefits of biodiversity and ecosystems throughout my presentation.

60 "Ingrid Haeckel" (1813459200)
00:08:06.479 --> 00:08:12.599
And as aside, this is just a really cool card I received during the pandemic and I love this

61 "Ingrid Haeckel" (1813459200)
00:08:12.599 --> 00:08:15.929
graphic of a biodiversity Zoom meeting.

62 "Ingrid Haeckel" (1813459200)
00:08:19.289 --> 00:08:28.559
We focus on habitats in the context of conservation and land use planning, because they are relatively easy to identify for most people,.

63 "Ingrid Haeckel" (1813459200)
00:08:28.559 --> 00:08:32.789
They are a good surrogate for individual species and biodiversity.

64 "Ingrid Haeckel" (1813459200)
00:08:32.789 --> 00:08:39.089
And focusing on habitats, rather than individual species can also provide an umbrella for addressing

65 "Ingrid Haeckel" (1813459200)
00:08:39.089 --> 00:08:48.299
many at risk species, and lastly, habitat protection measures can be easily incorporated into local ordinances and site design.

66 "Ingrid Haeckel" (1813459200)
00:08:50.369 --> 00:09:04.824
The Hudson River Estuary watershed is spans 5,300 square miles of land, draining to the tidal Hudson River, and it includes most of the 10 New York counties between the federal dam in Troy and upper New York harbor.

67 "Ingrid Haeckel" (1813459200)
00:09:04.824 --> 00:09:14.394
It's a region of remarkable by diversity representing the transition of ecosystems and species from the mid-Atlantic region to New England.

68 "Ingrid Haeckel" (1813459200)
00:09:14.699 --> 00:09:22.319
And coastal to inland zones. As a result, despite covering only 10% of the state's land area,

69 "Ingrid Haeckel" (1813459200)
00:09:22.319 --> 00:09:29.519
the Hudson Valley supports an unusually high percentage of New York's amphibian, reptile, birds, and mammal species.

70 "Ingrid Haeckel" (1813459200)
00:09:30.144 --> 00:09:41.064
And, of course, all of the habitats and land uses throughout our watershed are also very intimately connected to the quality and quantity of water in our streams. And estuary.

71 "Ingrid Haeckel" (1813459200)
00:09:41.604 --> 00:09:54.324
Land use planning is vital, both to plan for growth in areas that are most suitable in our communities. And to conserve the region’s rich, natural history and, and heritage, and avoid the harmful impacts of sprawl.

72 "Ingrid Haeckel" (1813459200)
00:09:56.609 --> 00:10:10.584
There are a couple of overarching threats to habitats and biodiversity that come up throughout this webinar and one of those is habitat loss and fragmentation. Driven by land conversion and the division of natural areas by new roads,

73 "Ingrid Haeckel" (1813459200)
00:10:10.584 --> 00:10:12.054
driveways, and development,

74 "Ingrid Haeckel" (1813459200)
00:10:12.389 --> 00:10:26.219
this process typically results in the decline or loss of what we call habitat specialists, which are species that depend on a narrow range of conditions and they're often sensitive to disturbance.

75 "Ingrid Haeckel" (1813459200)
00:10:26.219 --> 00:10:29.249
Such as forest interior nesting songbirds.

76 "Ingrid Haeckel" (1813459200)
00:10:29.664 --> 00:10:35.694
And in turn habitat fragmentation tends to favor the spread of generalists,

77 "Ingrid Haeckel" (1813459200)
00:10:35.874 --> 00:10:45.263
which are species able to adapt to a wide variety of conditions, like raccoons and possums, and they do very well in our developed neighborhoods.

78 "Ingrid Haeckel" (1813459200)
00:10:46.284 --> 00:10:56.424
Fragmentation also facilitates the spread of non-native, invasive species, which are a major threat, and I won't have time to really discuss invasives, very much in this webinar.

79 "Ingrid Haeckel" (1813459200)
00:10:57.324 --> 00:11:05.964
But and lastly, fragmentation is often accompanied by increased impervious cover and associated impacts to water quality and flood risk.

80 "Ingrid Haeckel" (1813459200)
00:11:08.129 --> 00:11:13.019
Climate change is also playing an increasing role in habitat decline and loss.

81 "Ingrid Haeckel" (1813459200)
00:11:13.019 --> 00:11:17.609
Causing species to migrate to higher elevations or latitudes,

82 "Ingrid Haeckel" (1813459200)
00:11:17.609 --> 00:11:23.609
increasing the spread of diseases and adding a multitude of stresses to species and communities.

83 "Ingrid Haeckel" (1813459200)
00:11:24.174 --> 00:11:36.954
And at the same time nature is, of course, essential to our ability to avoid catastrophic impacts from climate change and to adapt to climate hazards that we're already experiencing, including rising temperatures,

84 "Ingrid Haeckel" (1813459200)
00:11:36.954 --> 00:11:47.634
extreme precipitation and floods, and sea level rise. And the ambitious climate goals related to land use at state, federal, global levels, in many cases

85 "Ingrid Haeckel" (1813459200)
00:11:47.784 --> 00:11:53.334
really boil down to local action and local governments have a significant role to play in

86 "Ingrid Haeckel" (1813459200)
00:11:53.609 --> 00:11:56.129

conserving nature through home rule authority.

87 "Ingrid Haeckel" (1813459200)
00:11:57.959 --> 00:12:12.474
This presentation outlines the major habitat types in the Hudson Valley, including tidal habitats, stream corridors, wetlands, forests, rocky habitats, grasslands and shrublands, and it generally follows the terminology used in Hudsonia's

88 "Ingrid Haeckel" (1813459200)
00:12:12.474 --> 00:12:14.484
biodiversity assessment manual.

89 "Ingrid Haeckel" (1813459200)
00:12:15.119 --> 00:12:25.319
There are many different sub-habitat types within each of these general groupings, and I'll describe a few of each and direct you to additional resources if you want to learn more.

90 "Ingrid Haeckel" (1813459200)
00:12:25.319 --> 00:12:29.219
Keep in mind that many habitats are interrelated and connected.

91 "Ingrid Haeckel" (1813459200)
00:12:29.219 --> 00:12:37.224
And most animals depend on more than one habitat. I'm going to refer to various species throughout the presentation

92 "Ingrid Haeckel" (1813459200)
00:12:37.224 --> 00:12:47.544
and many of these are examples of species of conservation concern, which is a term we use to include species listed in the in New York as endangered, threatened,

93 "Ingrid Haeckel" (1813459200)
00:12:47.939 --> 00:13:02.814
special concern, rare, or a species of greatest conservation need, which are species identified in the state wildlife action plan that are experiencing some level of population decline and require conservation action.

94 "Ingrid Haeckel" (1813459200)
00:13:03.119 --> 00:13:07.589
I encourage you to refer back to our January 2022 webinar.

95 "Ingrid Haeckel" (1813459200)
00:13:07.589 --> 00:13:17.399

About species designations and conservation status for a really great overview of all this terminology and what it means from a regulatory standpoint as well.

96 "Ingrid Haeckel" (1813459200)
00:13:21.479 --> 00:13:31.829
The Hudson River estuary spans 153 miles from upper New York harbor to the federal dam in Troy, and it's influenced by the ebb and flow of tides from the Atlantic Ocean.

97 "Ingrid Haeckel" (1813459200)
00:13:31.829 --> 00:13:41.729
The diversity of habitats and species in the estuary reflects the range of tidal inundation and salinity, or the saltiness, that occurs in the ecosystem.

98 "Ingrid Haeckel" (1813459200)
00:13:41.729 --> 00:13:49.589
Salinity fluctuates seasonally based on contributions of fresh water from precipitation and snowmelt.

99 "Ingrid Haeckel" (1813459200)
00:13:49.589 --> 00:13:53.759
With salt water predominant south of the Mario Cuomo bridge

100 "Ingrid Haeckel" (1813459200)
00:13:53.759 --> 00:14:01.499
and brackish or slightly salty conditions, reaching as far north as Newburgh or sometimes Poughkeepsie during the summer months.

101 "Ingrid Haeckel" (1813459200)
00:14:01.499 --> 00:14:05.309
The estuary is entirely fresh water north of there.

102 "Ingrid Haeckel" (1813459200)
00:14:06.629 --> 00:14:15.689
The tidal Hudson River provides habitat for at least 200 fish species, including a signature group of migratory fish

103 "Ingrid Haeckel" (1813459200)
00:14:15.689 --> 00:14:29.609
including sturgeon, striped bass, shad and river herring, which live the first few months, or years of their lives in the river’s fresh water habitats before they swim out into the Atlantic Ocean to reach maturity.

104 "Ingrid Haeckel" (1813459200)
00:14:29.609 --> 00:14:40.439
Commercial fishing for sturgeon, shad, and striped bass was once a major industry on the Hudson but fisheries were closed due to overfishing pollution and other problems.

105 "Ingrid Haeckel" (1813459200)
00:14:40.584 --> 00:14:46.464
Monitoring and restoration efforts continue to be underway to support recovery of these species.

106 "Ingrid Haeckel" (1813459200)
00:14:47.124 --> 00:14:57.864
The rebound of bald eagle populations on the river has been a success story, and it is now relatively common to be able to spot bald eagles foraging for fish along the Hudson.

107 "Ingrid Haeckel" (1813459200)
00:14:59.699 --> 00:15:12.234
The diversity of fisheries in the Hudson River estuary is in part due to the variety of tidal wetland habitats found in and along the Hudson. Tidal wetlands include marshes, which are characterized by herbaceous

108 "Ingrid Haeckel" (1813459200)
00:15:12.234 --> 00:15:16.134
vegetation shown on the left such as cattails.

109 "Ingrid Haeckel" (1813459200)
00:15:16.499 --> 00:15:22.829
And swamps, which are dominated by trees or shrubs, with a closed canopy.

110 "Ingrid Haeckel" (1813459200)
00:15:23.879 --> 00:15:29.934
Freshwater tidal wetlands, North of Newburgh are considered rare at both state and global levels.

111 "Ingrid Haeckel" (1813459200)
00:15:30.354 --> 00:15:41.544
Tidal wetlands are important for many reasons. They serve as vital nursery areas for young fish and they provide essential habitat for the insects worms, snails, and shellfish

112 "Ingrid Haeckel" (1813459200)
00:15:41.789 --> 00:15:46.739
that feed the diverse fish, reptiles, amphibians, and birds in the estuary.

113 "Ingrid Haeckel" (1813459200)
00:15:46.739 --> 00:15:52.829
They also support numerous rare plant species, adapted to the tidal conditions.

114 "Ingrid Haeckel" (1813459200)
00:15:52.829 --> 00:16:06.509
And large tidal marshes are important rest stops for migratory birds nesting areas for

115 "Ingrid Haeckel" (1813459200)
00:16:06.509 --> 00:16:10.559
species like the least bittern, shown here.

116 "Ingrid Haeckel" (1813459200)
00:16:11.844 --> 00:16:22.254
Numerous tributary creeks and streams entering the tidal Hudson provide important spawning habitat for river herring, and are used by American eel,

117 "Ingrid Haeckel" (1813459200)
00:16:22.464 --> 00:16:34.464
which is a migratory fish that makes the reverse journey; spawning in the Atlantic Ocean and traveling as tiny glass eels into freshwater streams where they grow and reach maturity.

118 "Ingrid Haeckel" (1813459200)
00:16:34.769 --> 00:16:46.199
Tidal shorelines, and creeks are also used by reptiles, such as the northern map turtle shown here and by diverse dragonflies and damselflies and freshwater mussels.

119 "Ingrid Haeckel" (1813459200)
00:16:47.579 --> 00:16:51.089
To sum up some of the major benefits of tidal habitats.

120 "Ingrid Haeckel" (1813459200)
00:16:51.089 --> 00:17:00.059
They provide critical nursery habitat that supports commercial and recreational fishing industries and they essentially cultivate the base of the estuary food web.

121 "Ingrid Haeckel" (1813459200)
00:17:00.059 --> 00:17:08.279
Tidal wetlands and vegetated shallows also help treat wastewater, removing large quantities of nitrogen and phosphorus.

122 "Ingrid Haeckel" (1813459200)
00:17:08.279 --> 00:17:17.219
And lastly, they helped to protect shorelines by absorbing water during floods and storm surges, helping to reduce erosion and property damage.

123 "Ingrid Haeckel" (1813459200)
00:17:18.959 --> 00:17:26.189
Like most large rivers and estuaries, the Hudson has been significantly altered since the industrial era.

124 "Ingrid Haeckel" (1813459200)

00:17:26.189 --> 00:17:32.309
It's estimated that more than a third of the estuary was filled with dredge spoils in the first half of the 20th century.

125 "Ingrid Haeckel" (1813459200)
00:17:32.309 --> 00:17:38.279
Eliminating significant habitat and contributing to the decline of major fish species.

126 "Ingrid Haeckel" (1813459200)
00:17:38.279 --> 00:17:47.159
Shoreline development is also an ongoing threat, in particular shoreline hardening with bulkheads and riprap revetment.

127 "Ingrid Haeckel" (1813459200)
00:17:47.159 --> 00:17:56.729
These practices reduce shoreline habitat, and pose a risk to inland migration of tidal wetlands, which is going to be really vital as sea level rises and affects the Hudson.

128 "Ingrid Haeckel" (1813459200)
00:17:56.729 --> 00:18:02.579
And in addition, invasive species are an ongoing threat to the river's ecology.

129 "Ingrid Haeckel" (1813459200)
00:18:02.579 --> 00:18:11.639
Round goby entered the system in 2021 and is considered a very significant threat to native populations of fish in the Hudson.

130 "Ingrid Haeckel" (1813459200)
00:18:11.639 --> 00:18:15.359
And when that is just beginning to be studied.

131 "Ingrid Haeckel" (1813459200)
00:18:17.969 --> 00:18:24.329
The numerous tributary streams that flow into the Hudson River, and their are associated stream buffers or riparian areas

132 "Ingrid Haeckel" (1813459200)
00:18:24.329 --> 00:18:28.199
provide some of the most important wildlife habitat in our region.

133 "Ingrid Haeckel" (1813459200)
00:18:28.464 --> 00:18:34.494
Streams can be classified based on their size, gradient, and temperature, but in this presentation,

134 "Ingrid Haeckel" (1813459200)
00:18:34.494 --> 00:18:47.544
I'm going to focus on the simple distinction between perennial versus intermittent streams as well as describe riparian corridors, springs and seeps, which are often the source of small streams and wetlands.

135 "Ingrid Haeckel" (1813459200)
00:18:50.219 --> 00:18:57.149
Perennial streams provide essential water for wildlife throughout the year and are critical habitat for many species.

136 "Ingrid Haeckel" (1813459200)
00:18:57.149 --> 00:19:04.799
Clean streams with unsilted bottoms can have particularly diverse fish and invertebrate populations.

137 "Ingrid Haeckel" (1813459200)
00:19:04.799 --> 00:19:13.409
Brook trout shown on the bottom right is our only native trout species and they require clear, cold, well-oxygenated streams.

138 "Ingrid Haeckel" (1813459200)
00:19:13.409 --> 00:19:19.379
They're very sensitive to increases in water temperature and sedimentation of the stream bottom.

139 "Ingrid Haeckel" (1813459200)
00:19:19.379 --> 00:19:31.709
Wood turtle lives along low gradient, perennial streams and adjacent forested or uplands and open uploads and they typically stay within a few hundred feet of the stream.

140 "Ingrid Haeckel" (1813459200)
00:19:31.709 --> 00:19:40.829
Perennial streams and the riparian zones also provide important nesting and forging habitat or many birds and are also

141 "Ingrid Haeckel" (1813459200)
00:19:40.829 --> 00:19:44.279
used for forging by bats.

142 "Ingrid Haeckel" (1813459200)
00:19:46.019 --> 00:19:49.979
In addition to larger perennial streams that flow year round,

143 "Ingrid Haeckel" (1813459200)
00:19:49.979 --> 00:20:02.579

there are numerous intermittent streams that only flow seasonally or after heavy rain, but that contribute significantly to the quantity and quality of water in downstream rivers and water bodies.

144 "Ingrid Haeckel" (1813459200)
00:20:02.579 --> 00:20:12.599
The EPA estimates that intermittent streams comprise about 60% of total stream length in the US. Some estimates are higher than that.

145 "Ingrid Haeckel" (1813459200)
00:20:12.599 --> 00:20:18.719
They can be important water sources for wildlife as well as a major source of aquatic invertebrates

146 "Ingrid Haeckel" (1813459200)
00:20:18.719 --> 00:20:24.569
that drift along with decaying organic matter to the downstream perennial reaches,

147 "Ingrid Haeckel" (1813459200)
00:20:24.569 --> 00:20:39.089
feeding fish and other organisms. Riparian corridors are the areas linked by a stream or other water body, including the floodplain, any wetlands and adjacent upland buffer areas.

148 "Ingrid Haeckel" (1813459200)
00:20:39.089 --> 00:20:47.579
They serve wildlife in many ways as travel corridors, resting habitat, and habitat for foraging, nesting, and overwintering.

149 "Ingrid Haeckel" (1813459200)
00:20:47.964 --> 00:21:02.364
River otter, mink, muskrat and beaver are mammals that are characteristic of intact riparian corridors. These corridors are increasingly important as well for wildlife migration as climate changes.

150 "Ingrid Haeckel" (1813459200)
00:21:04.709 --> 00:21:13.199
Springs and seeps are places where groundwater discharges to the surface either at a single point in the case of a spring,

151 "Ingrid Haeckel" (1813459200)
00:21:13.199 --> 00:21:18.089
Or diffusely, in the case of a seep. An example of that is shown on the left.

152 "Ingrid Haeckel" (1813459200)
00:21:18.414 --> 00:21:28.674
Springs and seeps are sometimes associated with headwaters of streams, but they can also discharge into wetlands, water bodies, or isolated upland areas.

153 "Ingrid Haeckel" (1813459200)
00:21:28.944 --> 00:21:37.974
And they are an important water source for many streams, as I said, because they help provide a continuous cool water supply at all times of the year.

154 "Ingrid Haeckel" (1813459200)
00:21:38.339 --> 00:21:48.359
Springs and seeps also serve important water sources for animals during droughts. And in the winter time when many other water sources are frozen.

155 "Ingrid Haeckel" (1813459200)
00:21:52.319 --> 00:22:03.384
Riparian corridors can help buffer streams and filter nutrients and sediment and run off from adjacent farmland or developed areas. Both perennial and intermittent stream corridors

156 "Ingrid Haeckel" (1813459200)
00:22:03.384 --> 00:22:11.184
provide necessary space for streams to move over time and adjust their course and can help slow and absorb floodwaters.

157 "Ingrid Haeckel" (1813459200)
00:22:11.459 --> 00:22:21.869
Well vegetated stream corridors have more stable banks and are also better able to regulate stream flow and dissipate energy during storms.

158 "Ingrid Haeckel" (1813459200)
00:22:21.869 --> 00:22:26.669
And that helps to reduce erosion and downstream flood impacts.

159 "Ingrid Haeckel" (1813459200)
00:22:26.669 --> 00:22:36.569
And they provide shade that keeps the water cool and contributes habitat and food sources through wood and leaf matter that fall into the stream.

160 "Ingrid Haeckel" (1813459200)
00:22:39.179 --> 00:22:48.059
The expansion of impervious surfaces from development alters drainage patterns and it increases the amount of stormwater flowing directly into streams.

161 "Ingrid Haeckel" (1813459200)
00:22:48.059 --> 00:22:56.099
Diverted stormwater raises stream temperature and carries pollutants and sediment. That's harmful to fish and wildlife.

162 "Ingrid Haeckel" (1813459200)
00:22:56.099 --> 00:23:00.719
Stormwater runoff can also cause erosion and downstream flooding.

163 "Ingrid Haeckel" (1813459200)
00:23:00.719 --> 00:23:08.429
Free-flowing streams everywhere in our region have been affected by aquatic habitat fragmentation by dams

164 "Ingrid Haeckel" (1813459200)
00:23:08.429 --> 00:23:18.389
and poorly designed or installed culverts that prevent passage by fish and aquatic organisms. And we held a great webinar about this topic in late January.

165 "Ingrid Haeckel" (1813459200)
00:23:20.129 --> 00:23:25.409
In addition, building in floodplains and riparian areas eliminates important buffer values.

166 "Ingrid Haeckel" (1813459200)
00:23:25.409 --> 00:23:36.929
And increases the risk of erosion and flooding. And lastly, intermittent streams are often overlooked during development and as a result, they can be ditched, filled or buried,

167 "Ingrid Haeckel" (1813459200)
00:23:36.929 --> 00:23:42.239
often causing local drainage issues and downstream impacts to stream habitat,

168 "Ingrid Haeckel" (1813459200)
00:23:42.239 --> 00:23:56.364
Flow, and water quality. The next section of the program is going to describe wetlands, which are a diverse group of habitats that share a few common traits. Soils that are saturated,

169 "Ingrid Haeckel" (1813459200)
00:23:56.364 --> 00:23:59.004
or flooded for at least part of the growing season and

170 "Ingrid Haeckel" (1813459200)
00:23:59.339 --> 00:24:10.259
long enough to lead to the establishment of hydric soils, and vegetation that's adapted to wet conditions.

171 "Ingrid Haeckel" (1813459200)
00:24:10.259 --> 00:24:20.879

Wetlands can be permanently flooded or only saturated in the plant rooting zone for several weeks out of the year. And they range from herbaceous to forested communities.

172 "Ingrid Haeckel" (1813459200)
00:24:22.649 --> 00:24:26.069
In addition to the tidal wetlands, I already described

173 "Ingrid Haeckel" (1813459200)
00:24:26.069 --> 00:24:37.739
there are diverse non-tidal, fresh water wetlands throughout the estuary watershed, ranging from wet meadows to hardwood swamps and I'll describe a few of the more common wetland types in this webinar.

174 "Ingrid Haeckel" (1813459200)
00:24:39.209 --> 00:24:49.679
We'll start off with one of the most common wetland types. Swamps. This is my personal favorite habitat. We use the term swamp in a technical sense:

175 "Ingrid Haeckel" (1813459200)
00:24:49.679 --> 00:25:00.809
a wetland nominated by woody vegetation. Swamps can be dominated by trees as in a forested swamp, or by shrubs in “shrub swamps”.

176 "Ingrid Haeckel" (1813459200)
00:25:00.809 --> 00:25:14.879
Swamps provide important habitat for a wide range of wildlife, especially when they're connected with other wetlands or embedded in larger areas of upland habitat such as forests, meadows, or shrublands.

177 "Ingrid Haeckel" (1813459200)
00:25:15.534 --> 00:25:29.964
Swamps located in floodplains or along low gradient streams are important wood turtle or box turtle habitat, and they provide nesting habitat for red shouldered hawk and other birds among many other wildlife.

178 "Ingrid Haeckel" (1813459200)
00:25:32.999 --> 00:25:45.749
An intermittent woodland pool is a small, isolated wetland that surrounded by forest with standing water during the fall, winter, and spring that drives up by mid to late summer during a typical year.

179 "Ingrid Haeckel" (1813459200)
00:25:46.284 --> 00:26:00.924
There a subset of vernal pool habitat that occurs within a forest, and the seasonal drying and isolation from streams prevents the establishment of fish populations in these pools. And fish are of course major

180 "Ingrid Haeckel" (1813459200)
00:26:00.924 --> 00:26:03.504
predators on amphibian eggs and larvae.

181 "Ingrid Haeckel" (1813459200)
00:26:04.374 --> 00:26:17.184
Intermittent woodland pools provide critical breeding habitat for a group of forest amphibians that includes wood frog, spotted salamander, and other mole salamanders, and once those reach maturity,

182 "Ingrid Haeckel" (1813459200)
00:26:17.214 --> 00:26:21.054
the amphibians disperse into the surrounding forest landscape.

183 "Ingrid Haeckel" (1813459200)
00:26:21.359 --> 00:26:29.909
Their core habitat encompasses the 1,000 foot radius around the pool, though they sometimes can travel much farther than that.

184 "Ingrid Haeckel" (1813459200)
00:26:30.744 --> 00:26:45.294
Intermittent woodland pools also support a rich invertebrate fauna, such as fair shrimp and fingernail clams, which are species that require the complete drying of their habitat, finish their lifecycle. And this is the time of year when we're getting ready for

185 "Ingrid Haeckel" (1813459200)
00:26:45.839 --> 00:26:57.389
big amphibian migrations and the breeding season, and if you're not familiar with our amphibian migration and road crossings, community science project, we can share information about that.

186 "Ingrid Haeckel" (1813459200)
00:26:59.609 --> 00:27:10.229
A marsh is a wetland that has standing water for most or all of the growing season, and is dominated by herbaceous vegetation, such as cattails or common reed.

187 "Ingrid Haeckel" (1813459200)
00:27:10.229 --> 00:27:16.949
Marshes often occur along streams or at the fringes of deeper water bodies, like lakes and ponds.

188 "Ingrid Haeckel" (1813459200)
00:27:16.949 --> 00:27:21.209
Or in association with adjacent swamps or wet meadows.

189 "Ingrid Haeckel" (1813459200)
00:27:21.209 --> 00:27:33.839

Some marshes are dominated by floating plants, such as pod lilies. They can also support rare plants and butterflies and provide habitat for many amphibians and reptiles such as spotted turtle.

190 "Ingrid Haeckel" (1813459200)
00:27:33.839 --> 00:27:41.009
Numerous birds use marsh for nesting and for nursery habitat.

191 "Ingrid Haeckel" (1813459200)
00:27:41.009 --> 00:27:51.839
That includes pied billed grebe, shown here and least bittern. And migrating waterfall which often use marshes as rest stops.

192 "Ingrid Haeckel" (1813459200)
00:27:55.554 --> 00:28:00.984
Meadow is another type of open wetland habitat with predominantly herbaceous plants,

193 "Ingrid Haeckel" (1813459200)
00:28:01.134 --> 00:28:15.564
but unlike marshes they're typically little to no standing water in a wet meadow for most of the growing season. Wet meadows occur in pastures and hay fields, old fields, and utility corridors, in former beaver pond

194 "Ingrid Haeckel" (1813459200)
00:28:15.564 --> 00:28:18.864
areas after the dam has been breached

195 "Ingrid Haeckel" (1813459200)
00:28:19.139 --> 00:28:22.199
And at the edges of other kinds of wetlands.

196 "Ingrid Haeckel" (1813459200)
00:28:22.199 --> 00:28:29.429
The plant communities of wetland meadows can be extremely variable, but they typically include a combination of grasses, sedges

197 "Ingrid Haeckel" (1813459200)
00:28:29.454 --> 00:28:43.584
rushes, forbs. And these habitats are used by forging snakes, turtles, and frogs and support diverse invertebrate communities of dragonflies, damselflies, butterflies,

198 "Ingrid Haeckel" (1813459200)
00:28:43.794 --> 00:28:46.434
Moths, wasps, bees, and other insects.

199 "Ingrid Haeckel" (1813459200)
00:28:46.649 --> 00:28:54.479
They're also the preferred habitat for meadow voles which is the primary prey source for raptors, like Northern Harrier.

200 "Ingrid Haeckel" (1813459200)
00:28:56.549 --> 00:29:09.479
Ponds and lakes are open water habitats that are abundant in our region. Some are natural in origin, but most are created, or have been created through excavation or damming of streams.

201 "Ingrid Haeckel" (1813459200)
00:29:09.479 --> 00:29:17.519
Lakes and ponds adjacent to other wetlands and surrounded by natural habitats, have the greatest value for native biodiversity.

202 "Ingrid Haeckel" (1813459200)
00:29:17.519 --> 00:29:24.869
They can provide habitat for many common fish and animals and can be important stopover sites for migrating waterfowl.

203 "Ingrid Haeckel" (1813459200)
00:29:24.869 --> 00:29:38.879
However, constructed ponds rarely provide the habitat value equal to the habitat that they replaced, and many lack sufficient natural buffer areas and are contaminated as a result by polluted runoff.

204 "Ingrid Haeckel" (1813459200)
00:29:41.099 --> 00:29:47.819
The diagram shows an overview of wetland functions and highlights some of the important benefits that wetlands provide.

205 "Ingrid Haeckel" (1813459200)
00:29:48.324 --> 00:29:54.864
Water enters wetlands in many cases, through streams and surface runoff or by groundwater

206 "Ingrid Haeckel" (1813459200)
00:29:54.864 --> 00:30:04.224
discharging through the surface, and the energy or velocity of the water dissipates as it enters the wetland, reducing flooding and erosion risk.

207 "Ingrid Haeckel" (1813459200)
00:30:04.499 --> 00:30:09.059
As the water slows down and spreads out, it can infiltrate.

208 "Ingrid Haeckel" (1813459200)

00:30:09.059 --> 00:30:21.059
To the ground, or be released slowly downstream, and in the process sediment and nutrients are filtered from the water and many contaminants are broken down by bacteria or taken up by plants.

209 "Ingrid Haeckel" (1813459200)
00:30:21.059 --> 00:30:28.799
So that the water that drains out of wetlands is often much cleaner than the water that entered.

210 "Ingrid Haeckel" (1813459200)
00:30:31.619 --> 00:30:46.164
Wetlands have declined dramatically in our region, due to filling, draining ,and other forms of disturbance. The US Fish and Wildlife Service estimates that New York has lost it 60% of original wetland cover since European settlement.

211 "Ingrid Haeckel" (1813459200)
00:30:46.164 --> 00:30:49.104
And that's a trend that continues today.

212 "Ingrid Haeckel" (1813459200)
00:30:49.439 --> 00:31:00.719
The construction of roads, driveways, and buildings often results in wetland loss as well as changes in wetland hydrology and leads to polluted stormwater runoff that degrades wetland habitats.

213 "Ingrid Haeckel" (1813459200)
00:31:01.164 --> 00:31:10.314
Development can also fragment the habitat connections between wetlands and connecting them to adjacent upland areas,

214 "Ingrid Haeckel" (1813459200)
00:31:10.314 --> 00:31:17.063
which disrupts the movement of wildlife that needs to travel between a larger habitat complex.

215 "Ingrid Haeckel" (1813459200)
00:31:17.369 --> 00:31:26.399
Invasive species, such as common reed and purple loosestrife can also displace native plants and alter the habitat value of wetlands.

216 "Ingrid Haeckel" (1813459200)
00:31:29.339 --> 00:31:36.509
Next I'm going to move on to upland habitats, which is a term that refers simply to habitats that are not wetlands.

217 "Ingrid Haeckel" (1813459200)
00:31:36.509 --> 00:31:43.589

And many types of upland habits occur in our region, ranging from meadows to forests and rocky crest.

218 "Ingrid Haeckel" (1813459200)
00:31:43.974 --> 00:31:52.044
In general forests are dominated by trees and shrubs forming a closed canopy; and meadows are dominated by herbaceous vegetation,

219 "Ingrid Haeckel" (1813459200)
00:31:52.194 --> 00:32:03.174
such as grasses and forbs. And shrublands are typically in transition between meadow and young forest, dominated by woody vegetation, but lacking a closed canopy.

220 "Ingrid Haeckel" (1813459200)
00:32:05.484 --> 00:32:12.804
Before I move on, I want to take a quick moment to note the significance of land use history in determining the status of habitats we see today.

221 "Ingrid Haeckel" (1813459200)
00:32:13.254 --> 00:32:23.334
And this is probably nowhere more apparent than with forests, which were practically eliminated from our region through widespread clearing in the 19th century for agriculture.

222 "Ingrid Haeckel" (1813459200)
00:32:24.119 --> 00:32:36.989
Nearly all the forests we see today are second growth in the Hudson Valley. But the influence of prior agricultural land uses continues to be a major driver of the ecosystems we see and their habitat values.

223 "Ingrid Haeckel" (1813459200)
00:32:39.714 --> 00:32:47.514
Many forests occur throughout the region with hardwood forests being the most common general type. Hardwood forests

224 "Ingrid Haeckel" (1813459200)
00:32:47.514 --> 00:32:55.284
are diverse and include a variety of deciduous species, such as maples, oaks, hickories, beech, white ash and birch.

225 "Ingrid Haeckel" (1813459200)
00:32:55.824 --> 00:33:09.204
The understory of saplings, shrubs, and herbaceous species can be dense and well developed, but has been depleted by excessive deer browse. In many parts of the Hudson Valley, that's a major threat to forest regeneration.

226 "Ingrid Haeckel" (1813459200)

00:33:09.569 --> 00:33:20.429
Large forests of all kinds are especially important for area sensitive wildlife, including forest interior song birds like the scarlet tanager, and cerulean warbler.

227 "Ingrid Haeckel" (1813459200)
00:33:20.429 --> 00:33:27.929
And the size, shape, and connectivity of forest are important to plants and animals that require large areas of intact

228 "Ingrid Haeckel" (1813459200)
00:33:27.929 --> 00:33:33.659
Habitat. Predators such as Fisher, bobcat, and various Raptors.

229 "Ingrid Haeckel" (1813459200)
00:33:37.859 --> 00:33:44.399
Conifer forests are dominated by evergreen species, such as Hemlock, white pine and Eastern red cedar.

230 "Ingrid Haeckel" (1813459200)
00:33:44.664 --> 00:33:52.884
They have similar values to hardwood forests, but they tend to have more limited understory vegetation. Conifer forests

231 "Ingrid Haeckel" (1813459200)
00:33:52.884 --> 00:34:05.424
and groves are used by many species of owls and other raptors for roosting, and sometimes nesting and they can also provide important winter shelter areas for deer during periods of deep snow.

232 "Ingrid Haeckel" (1813459200)
00:34:05.819 --> 00:34:10.649
Hemlock is an important component of many riparian corridors

233 "Ingrid Haeckel" (1813459200)
00:34:10.649 --> 00:34:15.179
as shown on the left and helps to maintain cool water temperatures.

234 "Ingrid Haeckel" (1813459200)
00:34:17.724 --> 00:34:25.764
Forests are excellent at infiltrating water to the soil, , through the soil, contributing to surface and ground water quality and quantity.

235 "Ingrid Haeckel" (1813459200)
00:34:26.484 --> 00:34:37.824
The water supports the vegetation growth in the forest and recharges groundwater supplies and in turn provides a continuous base flow to streams during dry months of the year.

236 "Ingrid Haeckel" (1813459200)
00:34:38.189 --> 00:34:42.059
By capturing and infiltrating precipitation,

237 "Ingrid Haeckel" (1813459200)
00:34:42.059 --> 00:34:46.859
forests help to avoid or minimize flooding after heavy rain and snowmelt events.

238 "Ingrid Haeckel" (1813459200)
00:34:46.859 --> 00:34:51.749
Forests can also capture many air particulates and purify air.

239 "Ingrid Haeckel" (1813459200)
00:34:51.749 --> 00:34:56.849
And their evapotranspiration helps to cool temperatures and moderate the local climate.

240 "Ingrid Haeckel" (1813459200)
00:34:56.849 --> 00:35:07.199
Also provide long term, carbon sequestration and storage, and lastly for us provide important economic products from timber to maple syrup.

241 "Ingrid Haeckel" (1813459200)
00:35:07.224 --> 00:35:15.414
As well, as recreation opportunities. The fragmentation or division of forest habitat

242 "Ingrid Haeckel" (1813459200)
00:35:15.444 --> 00:35:22.914
by roads and development is a major threat to forests in our region, reducing or eliminating or habitat required by sensitive wildlife.

243 "Ingrid Haeckel" (1813459200)
00:35:23.249 --> 00:35:34.169
Small forest fragments are often only suitable for a narrow range of common animals, such as white footed mouse, which is the principal vector for Lyme disease.

244 "Ingrid Haeckel" (1813459200)
00:35:34.169 --> 00:35:40.349
Fragmentation can also increase the spread of invasive species and forest pests.

245 "Ingrid Haeckel" (1813459200)
00:35:40.349 --> 00:35:50.279
And, of course, Hudson Valley forests have been very hard hit by Hemlock wooly adelgid and Emerald ash borer and other emerging pests are at our region’s doorstep.

246 "Ingrid Haeckel" (1813459200)
00:35:50.279 --> 00:36:00.659
Lastly, overabundant deer are one of the greatest threats to the future of our forests as they devour tree seedlings and shrubs and prevent healthy forest regrowth.

247 "Ingrid Haeckel" (1813459200)
00:36:03.089 --> 00:36:14.069
Moving on to our next habitat, rocky crest and ledge habitats occur in shallow soil areas where bedrock is exposed at or above the ground surface.

248 "Ingrid Haeckel" (1813459200)
00:36:14.069 --> 00:36:23.789
Crests occur on the summit of a hill or knoll, and ledges are where rocks form a steep or near vertical cliff.

249 "Ingrid Haeckel" (1813459200)
00:36:23.789 --> 00:36:31.349
Talus refers to the large rock fragments that often accumulate at the bottom of steep ledges and cliffs.

250 "Ingrid Haeckel" (1813459200)
00:36:31.349 --> 00:36:41.699
Some crest, ledge, and talus habitats support well- developed forests while others are only sparsely vegetated or have stunted vegetation.

251 "Ingrid Haeckel" (1813459200)
00:36:41.699 --> 00:36:50.609
These habitats can appear very harsh, but they support a great diversity of uncommon or rare plant species and animals.

252 "Ingrid Haeckel" (1813459200)
00:36:50.609 --> 00:36:58.799
Bedrock chemistry is an important factor, determining the species that occur in these environments.

253 "Ingrid Haeckel" (1813459200)
00:36:58.799 --> 00:37:07.919
With calcareous or calcium-rich rocks, like limestone and marble supporting many rare plants like the smooth cliffbrake shown here.

254 "Ingrid Haeckel" (1813459200)
00:37:08.424 --> 00:37:17.394
Some of our rare snakes like timber rattlesnake depend on these rocky habitats for winter denning and for breeding and basking in warm summer months.

255 "Ingrid Haeckel" (1813459200)
00:37:17.634 --> 00:37:24.744
And they also use wide, large areas of forest and meadow surrounding ledges for foraging during the summer.

256 "Ingrid Haeckel" (1813459200)
00:37:26.369 --> 00:37:37.709
Many mammals also use ledge and talus habitat for denning and bats may use rocky habitats for summer roosting, or for overwintering where there are deeper caves present.

257 "Ingrid Haeckel" (1813459200)
00:37:40.259 --> 00:37:45.869
The term upland shrublands refers to shrub-dominated non-wetland habitats.

258 "Ingrid Haeckel" (1813459200)
00:37:46.314 --> 00:37:59.274
And many people may commonly refer to these areas as brush. They're not very highly regarded habitats by most people. But in fact, shrublands are quite important for a wide range of at-risk wildlife species.

259 "Ingrid Haeckel" (1813459200)
00:37:59.634 --> 00:38:03.744
They’re usually lands that are in transition between meadows and young forest.

260 "Ingrid Haeckel" (1813459200)
00:38:04.614 --> 00:38:19.374
But they also occur along utility corridors and in areas that have been maintained by cutting or herbicides as well as in areas of recent forest clearing or blow downs and permanently shrubby areas like rocky

261 "Ingrid Haeckel" (1813459200)
00:38:19.374 --> 00:38:19.944
crests.

262 "Ingrid Haeckel" (1813459200)
00:38:20.250 --> 00:38:25.230
Without management, most shrublands eventually will become forest.

263 "Ingrid Haeckel" (1813459200)
00:38:25.435 --> 00:38:39.955
As many former agricultural areas have grown into forests in the past 100 years, and as people have suppressed the natural forest disturbances that trigger young forest growth, like forest fires, shrublands and young forest

264 "Ingrid Haeckel" (1813459200)
00:38:39.985 --> 00:38:47.875
and their wildlife have become less common. Many bird species of concern like the golden winged warbler and American Woodcock

265 "Ingrid Haeckel" (1813459200)
00:38:48.150 --> 00:38:59.430
nest in upland shrublands, and they're also used by New England cottontail, which is our native cottontail and that relies on shrubby thickets for cover.

266 "Ingrid Haeckel" (1813459200)
00:39:02.460 --> 00:39:12.630
The general term upland meadow encompasses hayfields pastures, old fields, and other non-wetland areas that are dominated by herbaceous vegetation.

267 "Ingrid Haeckel" (1813459200)
00:39:12.630 --> 00:39:18.900
The ecological values of these habitats can differ widely according to the type of vegetation present,

268 "Ingrid Haeckel" (1813459200)
00:39:18.900 --> 00:39:25.590
past disturbance, and current land use. Large fields that are likely to moderately grazed

269 "Ingrid Haeckel" (1813459200)
00:39:25.590 --> 00:39:31.740
lightly to moderately grazed pastures that are dominated by grasses

270 "Ingrid Haeckel" (1813459200)
00:39:31.740 --> 00:39:40.920
can support grassland breeding birds. While intensively grazed pastures have comparative little wildlife habitat value.

271 "Ingrid Haeckel" (1813459200)
00:39:42.150 --> 00:39:51.120
After abandonment, these agricultural lands tend to develop diverse plant communities of grasses, forbs and shrubs that will support a broad array of wildlife.

272 "Ingrid Haeckel" (1813459200)
00:39:51.120 --> 00:40:06.030
Large meadows that are greater than 10 acres or more may be important nesting and forging habitats for grassland breeding species like the eastern meadowlark, bobolink, and northern harrier many of which have been decline in recent decades.

273 "Ingrid Haeckel" (1813459200)

00:40:06.030 --> 00:40:10.860
Primarily due to the farmland abandonment and succession to forest habitat.

274 "Ingrid Haeckel" (1813459200)
00:40:10.860 --> 00:40:19.380
Meadows can also support a very rich insect and invertebrate fauna, including pollinators that are critical to agriculture.

275 "Ingrid Haeckel" (1813459200)
00:40:21.870 --> 00:40:26.340
Many grassland and shrubland areas are a legacy of agricultural land use.

276 "Ingrid Haeckel" (1813459200)
00:40:26.340 --> 00:40:35.340
And certain agricultural practices are compatible with preserving habitat values. Open habitats can also help manage watershed runoff

277 "Ingrid Haeckel" (1813459200)
00:40:35.340 --> 00:40:38.940
by infiltrating water to the soil and recharging ground water.

278 "Ingrid Haeckel" (1813459200)
00:40:39.295 --> 00:40:47.695
They can maintain good soil cover and reduce erosion, and needless to say these are often very scenic areas that are

279 "Ingrid Haeckel" (1813459200)
00:40:47.875 --> 00:40:58.195
cherished by local residents for their value . And open habitats are often also popular destinations for recreation. And in some cases hunting.

280 "Ingrid Haeckel" (1813459200)
00:41:01.470 --> 00:41:13.140
Farmland abandonment has been a driver of meadow and shrubland habitat loss as these areas are often favored sites for new housing developments or renewable energy projects.

281 "Ingrid Haeckel" (1813459200)
00:41:13.140 --> 00:41:21.060
Even if they're left in a natural state, without management, most grassland and shrubland areas will eventually turn to forest.

282 "Ingrid Haeckel" (1813459200)
00:41:21.060 --> 00:41:34.380

In the past wildfires and beaver activity helped create open habitats, but these types of disturbances have been much, become much less common over time through suppression.

283 "Ingrid Haeckel" (1813459200)
00:41:34.380 --> 00:41:38.460
And fragmentation is also an ongoing threat to these habitats

284 "Ingrid Haeckel" (1813459200)
00:41:38.460 --> 00:41:44.370
by restricting animal movement and facilitating the spread of invasive species and increasing

285 "Ingrid Haeckel" (1813459200)
00:41:44.370 --> 00:41:57.595
proximity to human disturbance. So this webinar was designed to give you a broad overview of the most common habitats in our region. But there are many more resources available for you to learn more.

286 "Ingrid Haeckel" (1813459200)
00:41:57.895 --> 00:42:05.815
I'm gonna share links to these in our chat as well as through our follow up email in the next couple of days.

287 "Ingrid Haeckel" (1813459200)
00:42:06.325 --> 00:42:13.915
The Hudson River Estuary Wildlife and Habitat Conservation Framework is a great publication for an overview of biodiversity in the watershed.

288 "Ingrid Haeckel" (1813459200)
00:42:14.370 --> 00:42:17.640
And it describes key plants, animals, and habitats.

289 "Ingrid Haeckel" (1813459200)
00:42:17.640 --> 00:42:25.830
As well as proposes conservation strategies. The framework also maps and describes significant biodiversity areas, shown on the right.

290 "Ingrid Haeckel" (1813459200)
00:42:25.830 --> 00:42:35.640
Which are areas with high concentrations of rare species and significant natural communities and these are really useful units for municipal planning and policy.

291 "Ingrid Haeckel" (1813459200)
00:42:37.020 --> 00:42:42.270
For more detailed, habitat descriptions, the Habitat Biodiversity Assessment Manual.

292 "Ingrid Haeckel" (1813459200)
00:42:42.270 --> 00:42:56.995
for the Hudson River Estuary Corridor by Hudsonia offers guidance to identify, assess, and protect habitats. And for a complete description of habitats in New York state, you can refer to Ecological Communities of New York State.

293 "Ingrid Haeckel" (1813459200)
00:42:57.300 --> 00:43:04.140
And the New York Natural Heritage Program has an online website for conservation guides

294 "Ingrid Haeckel" (1813459200)
00:43:04.140 --> 00:43:10.590
that provide great descriptions of these habitats along with planning and management considerations.

295 "Ingrid Haeckel" (1813459200)
00:43:12.990 --> 00:43:18.870
Hudsonia also has published some wonderful habitat fact sheets and these are simple

296 "Ingrid Haeckel" (1813459200)
00:43:18.870 --> 00:43:25.950
2 pagers, they have descriptions, examples of species, threats, and conservation recommendations.

297 "Ingrid Haeckel" (1813459200)
00:43:25.950 --> 00:43:31.590
These can be printed out and handed to project sponsors if you're on a planning board.

298 "Ingrid Haeckel" (1813459200)
00:43:33.150 --> 00:43:40.315
And, lastly, of course learning about habitats is truly best done outside, in the field.

299 "Ingrid Haeckel" (1813459200)
00:43:40.585 --> 00:43:48.745
So, keep an eye out for our offerings of outdoor field workshops where participants learn how to identify and conserve habitat.

300 "Ingrid Haeckel" (1813459200)
00:43:48.930 --> 00:43:57.030
And there may also be local naturalist groups, or other organizations in your area that provide public outings and field trips.

301 "Ingrid Haeckel" (1813459200)
00:43:58.860 --> 00:44:09.480
So, thank you very much for listening. That was quite a whirlwind of habitat information. I'd be happy to answer a few questions if we have time.

302 "Christine Vanderlan" (1024215808)
00:44:12.540 --> 00:44:18.930
Thank you. Ingrid we do have a couple of questions that I see in the Q and A.

303 "Christine Vanderlan" (1024215808)
00:44:18.930 --> 00:44:23.910
Let's see, we have a specific slide related question for slide 33.

304 "Christine Vanderlan" (1024215808)
00:44:23.910 --> 00:44:33.240
If you want to backtrack a little bit, the question is, do you ascribe to a better buffer for development near wetlands, in

305 "Christine Vanderlan" (1024215808)
00:44:33.240 --> 00:44:39.210
parentheses, intermittent or woodland pools

306 "Christine Vanderlan" (1024215808)
00:44:39.210 --> 00:44:49.080
or hardwood swamps, of more than 50 feet? How do we handle or designate wildlife corridors when working with developers while creating buffers?

307 "Ingrid Haeckel" (1813459200)
00:44:49.080 --> 00:44:52.620
All right yeah, so.

308 "Ingrid Haeckel" (1813459200)
00:44:52.620 --> 00:44:56.040
There are many different

309 "Ingrid Haeckel" (1813459200)
00:44:56.040 --> 00:45:03.480
models for protective wetland buffers and how those can be incorporated to local code.

310 "Ingrid Haeckel" (1813459200)
00:45:04.735 --> 00:45:18.535
We don't have a particular recommendation at a program level because communities are diverse and have different situations, and a buffer for a urban community may

311 "Ingrid Haeckel" (1813459200)
00:45:18.900 --> 00:45:23.730
it may make sense to have a different type of buffer than in the rural community.

312 "Ingrid Haeckel" (1813459200)
00:45:23.730 --> 00:45:32.610
But there is a great document, guidance document from the Environmental Law Institute called the Planners guide to wetland buffers.

313 "Ingrid Haeckel" (1813459200)
00:45:32.610 --> 00:45:36.060
And that explains some of the science behind, .

314 "Ingrid Haeckel" (1813459200)
00:45:36.060 --> 00:45:40.590
The value of different size buffers and

315 "Ingrid Haeckel" (1813459200)
00:45:40.590 --> 00:45:51.570
in addition the, there is a compilation of model local laws to increase resilience that was published by DEC and the Department of State

316 "Ingrid Haeckel" (1813459200)
00:45:51.570 --> 00:45:59.730
a few years ago we've done a webinar on that, and that includes different models of regulations from across the state.

317 "Ingrid Haeckel" (1813459200)
00:45:59.730 --> 00:46:11.490
And I'll note we've done other webinars in the past about wetland conservation if you look back at our webpage and we are planning to do some more outreach on this topic later this year.

318 "Ingrid Haeckel" (1813459200)
00:46:11.490 --> 00:46:17.130
And feel free to follow up with me separately outside of the webinar to discuss that issue.

319 "Christine Vanderlan" (1024215808)
00:46:20.970 --> 00:46:34.980
Great, thanks. Another question is whether there is a link to a website where people can search on plant species status, such as threatened or endangered, or the like.

320 "Ingrid Haeckel" (1813459200)
00:46:37.470 --> 00:46:40.530
Yeah, that's a good question. .

321 "Ingrid Haeckel" (1813459200)
00:46:40.530 --> 00:46:46.800
There maybe Gretchen wants to chime in, because I'm thinking of the New York Flora Atlas.

322 "Ingrid Haeckel" (1813459200)
00:46:46.800 --> 00:46:52.500
And I think that does provide the status of different plant species in the state.

323 "Ingrid Haeckel" (1813459200)
00:46:52.500 --> 00:46:55.830
, there's also a state rare plant list.

324 "Ingrid Haeckel" (1813459200)
00:46:55.830 --> 00:47:02.010
And Gretchen, you may have links to these things in your presentation. I can't recall.

325 "Ingrid Haeckel" (1813459200)
00:47:03.210 --> 00:47:12.360
You're muted there you go.

326 "Gretchen Stevens" (590238464)
00:47:13.410 --> 00:47:16.710
Here you should be, , can you hear me.

327 "Gretchen Stevens" (590238464)
00:47:16.710 --> 00:47:21.775
I don't have those links in my presentation, but we can certainly send those links.

328 "Gretchen Stevens" (590238464)
00:47:21.775 --> 00:47:35.185
There is a DEC web page that lists the endangered, threatened, and rare plant species, in the state and, there's also the New York Natural Heritage Program

329 "Gretchen Stevens" (590238464)
00:47:35.640 --> 00:47:46.590
Which has a different system of ranking for rare species, including plants. We can send those links.

330 "Christine Vanderlan" (1024215808)
00:47:46.590 --> 00:47:51.210
Thanks.

331 "Christine Vanderlan" (1024215808)
00:47:51.210 --> 00:47:55.740
Great, thank you. I think

332 "Christine Vanderlan" (1024215808)
00:47:55.740 --> 00:48:01.620

Looking at the time, we'll see if we can pick up on other questions at the very end.

333 "Christine Vanderlan" (1024215808)
00:48:01.620 --> 00:48:07.170
And Gretchen, if you'd like to share your screen and begin.

334 "Gretchen Stevens" (590238464)
00:48:07.170 --> 00:48:10.590
Yeah.

335 "Gretchen Stevens" (590238464)
00:48:10.590 --> 00:48:14.610
Screen.

336 "Gretchen Stevens" (590238464)
00:48:21.240 --> 00:48:27.660
Are you seeing an opening screen? Yes, that looks great. Great. Okay.

337 "Gretchen Stevens" (590238464)
00:48:27.660 --> 00:48:30.960
Yes, Ah, so hello everyone.

338 "Gretchen Stevens" (590238464)
00:48:30.960 --> 00:48:40.080
Ingrid has told us a lot about habitats in the region. And as

339 "Gretchen Stevens" (590238464)
00:48:40.080 --> 00:48:52.195
as conservation biologists, we often use habitats as surrogates for biodiversity as a whole. They are both a component of biodiversity themselves

340 "Gretchen Stevens" (590238464)
00:48:52.225 --> 00:49:06.805
but they also tell us a lot about what's happening on the landscape. If you know what kind of habitat you have, and its condition, you can get a pretty good idea of the kinds of plants and animals and other organisms that are likely to occur there.

341 "Gretchen Stevens" (590238464)
00:49:08.245 --> 00:49:19.405
So, I'm going to talk about some of the basic conservation principles that can be applied widely by landowners by developers, planning boards,

342 "Gretchen Stevens" (590238464)
00:49:19.405 --> 00:49:26.815

town boards and really anyone who's considering the impacts of land uses on ecosystems and species.

343 "Gretchen Stevens" (590238464)
00:49:27.325 --> 00:49:37.585
I'll also talk about some of the existing state and federal protections for biodiversity and water resources and the

344 "Gretchen Stevens" (590238464)
00:49:37.710 --> 00:49:51.535
kinds of additional protections that can be established through local legislation and by improving standards for environmental reviews and decision making, but starting with some conservation principles.

345 "Gretchen Stevens" (590238464)
00:49:52.075 --> 00:49:52.855
.

346 "Gretchen Stevens" (590238464)
00:49:53.520 --> 00:50:07.105
When we're excuse me, just a second, when we're thinking about biodiversity, we really cannot ignore water resources, which are fundamental to every aspect of ecosystems.

347 "Gretchen Stevens" (590238464)
00:50:07.705 --> 00:50:20.365
The infiltration of water to the soils is essential to maintaining the quality and quantity of groundwater and surface water and the habitats of streams, lakes and ponds.

348 "Gretchen Stevens" (590238464)
00:50:22.015 --> 00:50:23.365
But, .

349 "Gretchen Stevens" (590238464)
00:50:23.670 --> 00:50:33.510
Impervious surfaces such as roads and driveways and roofs and

350 "Gretchen Stevens" (590238464)
00:50:33.510 --> 00:50:47.635
other and paved areas of any kind, prevent water from seeping into the soils and instead promote rapid run off of rainwater and snowmelt into nearby ditches streams and wetlands. This rapid runoff

351 "Gretchen Stevens" (590238464)
00:50:47.635 --> 00:50:58.615
leads to flashy streams that fill up during rainfall and snowmelt events. And then dry up quickly, because the ground water is not there to support the base flow.

352 "Gretchen Stevens" (590238464)
00:50:59.605 --> 00:51:08.695
In these ways land development often leads to depletion and degradation of groundwater, streams and ponds. By contrast,

353 "Gretchen Stevens" (590238464)
00:51:08.695 --> 00:51:16.255
though areas with undisturbed vegetation allows large volumes of rainwater and snowmelt to seep into the soils.

354 "Gretchen Stevens" (590238464)
00:51:18.325 --> 00:51:31.435
Forests may be the best way to maintain, , flow volumes and cool temperatures of streams, the good water quality, the bank stability of streams,

355 "Gretchen Stevens" (590238464)
00:51:31.825 --> 00:51:46.435
and the habitat quality of streams and ponds and the best insurance for maintaining the quality and quantity of groundwater supplies. Ingrid mentioned some of this, but I just want to reiterate this because forests

356 "Gretchen Stevens" (590238464)
00:51:46.615 --> 00:51:56.395
are such an important part of our landscapes. The forest canopy and understory vegetation intercepts some of the rain and snow,

357 "Gretchen Stevens" (590238464)
00:51:57.295 --> 00:52:09.925
large volumes of water enter the litter and the duff on the forest floor, and large volumes seep into the soils where the water is then available for uptake, by plants,

358 "Gretchen Stevens" (590238464)
00:52:09.925 --> 00:52:15.205
or is returned to the atmosphere of via evapotransporation.

359 "Gretchen Stevens" (590238464)
00:52:15.990 --> 00:52:20.370
Okay.

360 "Gretchen Stevens" (590238464)
00:52:20.370 --> 00:52:27.630
I'll say a few things about buffer zones, Buffer zones

361 "Gretchen Stevens" (590238464)
00:52:28.435 --> 00:52:33.625
help to protect sensitive, natural areas from the effects of human activities,

362 "Gretchen Stevens" (590238464)
00:52:33.625 --> 00:52:48.475
such as pollution and noise and lights and soil erosion and other disturbances. In these slides where the land was mowed right up to the stream bank , a buffer zone of trees and shrubs with their strong deep roots,

363 "Gretchen Stevens" (590238464)
00:52:48.505 --> 00:52:51.595
for example, might have prevented this slumping.

364 "Gretchen Stevens" (590238464)
00:52:54.115 --> 00:53:07.345
A broad forested buffer zone, along a stream can stabilize the stream bank, can intercept the sediments and contaminants in surface runoff, such as run off from these agricultural fields.

365 "Gretchen Stevens" (590238464)
00:53:08.185 --> 00:53:22.435
It can shield wildlife from noise and other kinds of disturbance and can provide valuable habitat itself as well as a safe travel corridor for wildlife. Buffer zones are important not just around

366 "Gretchen Stevens" (590238464)
00:53:22.440 --> 00:53:28.710
Streams and wetlands, though, but really around any kind of sensitive area, including upland habitats.

367 "Gretchen Stevens" (590238464)
00:53:29.880 --> 00:53:38.010
Another important idea related to biodiversity conservation is the notion of habitat connectedness.

368 "Gretchen Stevens" (590238464)
00:53:39.085 --> 00:53:53.935
Many kinds of wildlife need to move across the landscape to fulfill their needs for shelter, for resting, for foraging, for hydrating, breeding, overwintering and population dispersal,

369 "Gretchen Stevens" (590238464)
00:53:55.615 --> 00:54:07.765
but developed features such as roads, parking lots, driveways, walls, yards, vertical sided curbs, automobiles,

370 "Gretchen Stevens" (590238464)
00:54:08.010 --> 00:54:18.120

lawnmowers and so forth pose very significant hazards and barriers to safe migrations, but protecting

371 "Gretchen Stevens" (590238464)
00:54:18.120 --> 00:54:27.990
broad connections between habitats without those obstructions allows the safe movement between habitat areas for plants and wildlife.

372 "Gretchen Stevens" (590238464)
00:54:29.725 --> 00:54:32.064
Here's an example, the spotted turtle,

373 "Gretchen Stevens" (590238464)
00:54:32.064 --> 00:54:46.795
which is listed as a species of special concern in New York, uses many kinds of wetlands to meet its needs for foraging, basking, and overwintering, and uses the upland habitats near those wetlands for resting and nesting

374 "Gretchen Stevens" (590238464)
00:54:47.065 --> 00:54:57.895
and travel. But the turtles are exposed to many hazards in their migrations between habitats in our settled landscapes. This map

375 "Gretchen Stevens" (590238464)
00:54:58.375 --> 00:55:02.455
illustrates a complex of habitats used by the spotted turtle.

376 "Gretchen Stevens" (590238464)
00:55:02.845 --> 00:55:17.155
The turtles might use this hardwood swamp area for resting, for basking, for foraging, and for overwintering.

377 "Gretchen Stevens" (590238464)
00:55:17.185 --> 00:55:27.445
They might use these, woodland pools, these vernal pools, in purple, for foraging and basking. In the

378 "Gretchen Stevens" (590238464)
00:55:28.015 --> 00:55:41.335
late spring, and early summer, the females might use one of these meadows for nesting. And all during the warm months, the turtles might use this upland hardwood forest for resting and for travel.

379 "Gretchen Stevens" (590238464)
00:55:41.335 --> 00:55:47.365
They actually spend long periods resting in forested tracts in the summer.

380 "Gretchen Stevens" (590238464)
00:55:50.005 --> 00:56:01.975
Preserving this kind of landscape without fragmentation by roads, driveways, yards or other intensive uses would help to protect the populations

381 "Gretchen Stevens" (590238464)
00:56:01.975 --> 00:56:08.155
not only of the spotted turtle, but also of other vulnerable wildlife that need to move between habitats.

382 "Gretchen Stevens" (590238464)
00:56:08.815 --> 00:56:17.575
So, you can imagine how cutting through this area with roads and driveways and houses and yards would threaten the turtles

383 "Gretchen Stevens" (590238464)
00:56:17.910 --> 00:56:27.390
and other animals who will continue to attempt to use this landscape in the ways that their populations have been using it for, probably, thousands of years.

384 "Gretchen Stevens" (590238464)
00:56:28.885 --> 00:56:43.255
For the spotted turtle, and for many other wildlife species of conservation concern, habitat areas in large broad configurations are preferable to small, narrow, or isolated patches.

385 "Gretchen Stevens" (590238464)
00:56:44.185 --> 00:56:55.405
Large, broad areas, especially, serve the needs of area-sensitive wildlife that have large territories, or that need to travel long distances to meet their life needs.

386 "Gretchen Stevens" (590238464)
00:56:56.335 --> 00:57:02.305
And the kinds of wildlife that require the special conditions found in deep habitat interiors.

387 "Gretchen Stevens" (590238464)
00:57:04.285 --> 00:57:19.165
This is an aerial photo showing a forested landscape with a north-south road lined with driveways and houses on the left and a large forest area on the right. A large forest

388 "Gretchen Stevens" (590238464)
00:57:19.165 --> 00:57:32.665
like, this can be important for some of our forest interior song birds like the black throated blue warbler or scarlet tanager whose nests are less successful at forest edges, or in small forest

389 "Gretchen Stevens" (590238464)

00:57:33.000 --> 00:57:41.910
where they're far more vulnerable to nest predators such as raccoons and blue jays and brood parasites such as the brown headed cowbird.

390 "Gretchen Stevens" (590238464)
00:57:43.285 --> 00:57:52.915
The population declines of these, and other forest interior songbirds in the Northeast has been attributed in part to the widespread fragmentation of forest in the region,

391 "Gretchen Stevens" (590238464)
00:57:53.155 --> 00:58:04.915
breaking up the forest into smaller patches where birds like this can no longer find the, the special conditions that are in the deep forest interior.

392 "Gretchen Stevens" (590238464)
00:58:06.655 --> 00:58:14.995
This is that same photo and here on the left, I've outlined the narrow patches of forest between neighboring houses yards and driveways.

393 "Gretchen Stevens" (590238464)
00:58:15.835 --> 00:58:25.465
While these small forest patches might be very important to the residents of those houses, providing shade and cool temperatures and privacy,

394 "Gretchen Stevens" (590238464)
00:58:26.335 --> 00:58:35.575
the wildlife habitat values of these narrow areas is largely limited to species that are highly tolerant of human activity, such as squirrels and chipmunks and.

395 "Gretchen Stevens" (590238464)
00:58:35.695 --> 00:58:39.205
raccoons, and house sparrows, blue jays. These are what

396 "Gretchen Stevens" (590238464)
00:58:39.205 --> 00:58:46.885
we call human subsidized wildlife species whose populations often increase dramatically in human settled areas.

397 "Gretchen Stevens" (590238464)
00:58:47.425 --> 00:59:01.495
But many of these prey on and compete with some of our wildlife species of conservation concern. Raccoons and grey squirrels are predators on songbird eggs and nestlings. Even blue jays will take bird eggs.

398 "Gretchen Stevens" (590238464)
00:59:02.130 --> 00:59:15.570
The threats from predators and other factors in our settled areas, lead to the decline and local disappearance of many wildlife species of conservation concern.

399 "Gretchen Stevens" (590238464)
00:59:16.825 --> 00:59:22.915
So while it's fine to have small forest patches like this, and they provide many services to your house and yard,

400 "Gretchen Stevens" (590238464)
00:59:23.545 --> 00:59:30.985
but if you're designing say, the conservation areas in a new subdivision, or even on a single parcel,

401 "Gretchen Stevens" (590238464)
00:59:31.525 --> 00:59:45.475
these patches will not provide the necessary habitat for many of the species of conservation concern that require that habitat areas that are distant from human activities. If you want to maintain viable

402 "Gretchen Stevens" (590238464)
00:59:45.570 --> 00:59:57.900
habitat areas for plants and animals of conservation concern, then focus on protecting large, broad and fragmented habitat areas, such as the forest on the right.

403 "Gretchen Stevens" (590238464)
01:00:01.315 --> 01:00:06.865
Among the reasons that habitat fragmentation is so harmful to native biodiversity,

404 "Gretchen Stevens" (590238464)
01:00:06.865 --> 01:00:17.185
are what we call the edge effects of developed areas. These are the influences of habitat edges on interior areas of habitats

405 "Gretchen Stevens" (590238464)
01:00:17.215 --> 01:00:27.625
and on the species that occupy those areas. We're looking here at a forested landscape with a newly constructed road and driveway and

406 "Gretchen Stevens" (590238464)
01:00:27.900 --> 01:00:31.290
building as the first step in a

407 "Gretchen Stevens" (590238464)
01:00:31.290 --> 01:00:35.610

new residential development project that will include 8 more houses.

408 "Gretchen Stevens" (590238464)
01:00:35.610 --> 01:00:47.430
The effects of driveways, yards, exterior, lights, noise, roaming pets, roaming children, polluted runoff,

409 "Gretchen Stevens" (590238464)
01:00:47.455 --> 01:00:54.085
Non-native invasive plants and human activity extends far beyond the footprints of the developed features.

410 "Gretchen Stevens" (590238464)
01:00:54.475 --> 01:01:03.475
One study found that the effects of a single residence alters the ecology of approximately 30 acres of forest around that residence.

411 "Gretchen Stevens" (590238464)
01:01:04.075 --> 01:01:17.335
That 30 acres is shown here in red. And others have found that the effects of roadways can extend over 300 feet into a forest from the roadway. These effects include reduce nesting success

412 "Gretchen Stevens" (590238464)
01:01:17.430 --> 01:01:27.295
of birds due to increased nest predation and brood parasitism, an increased incursions of non-native, invasive plants for example.

413 "Gretchen Stevens" (590238464)
01:01:27.895 --> 01:01:39.565
So, the real impacts of this road and driveway, house, and yard whose combined physical footprint may be only a few acres at most may actually encompass over 200 acres.

414 "Gretchen Stevens" (590238464)
01:01:39.565 --> 01:01:47.095
And then think of the actual impacts once this development is completed with 8 more long driveways. driveways

415 "Gretchen Stevens" (590238464)
01:01:47.430 --> 01:01:49.230
Houses and yards.

416 "Gretchen Stevens" (590238464)
01:01:50.275 --> 01:02:04.465

And it's not just forest, but fragmentation of large meadows by roads, driveways, and yards can have similar adverse effects on wildlife that need the protections provided in the deep interiors of large meadows,

417 "Gretchen Stevens" (590238464)
01:02:05.005 --> 01:02:19.015
including grassland breeding birds such as those that Ingrid mentioned. Here's a grasshopper sparrow and bobolink, eastern meadowlark, that have been declining in the northeastern U. S.

418 "Gretchen Stevens" (590238464)
01:02:19.230 --> 01:02:22.525
for decades due to loss of suitable habitat.

419 "Gretchen Stevens" (590238464)
01:02:23.665 --> 01:02:34.315
So, the general recommendation is to avoid or minimize the fragmentation of large forest, large meadows and other large habitat areas as much as possible.

420 "Gretchen Stevens" (590238464)
01:02:36.085 --> 01:02:48.385
So instead of long driveways leading to house locations, deep in the forest or meadow, locate new houses, and other developed features near roads

421 "Gretchen Stevens" (590238464)
01:02:48.385 --> 01:02:54.865
and other existing development to minimize the fragmentation of large habitat areas.

422 "Gretchen Stevens" (590238464)
01:02:57.660 --> 01:03:11.490
Another kind of fragmentation occurs when a stream is disrupted by a dam or an inadequate culvert. A culvert that is suspended above the stream bottom

423 "Gretchen Stevens" (590238464)
01:03:11.545 --> 01:03:20.395
acts as a barrier to upstream and downstream movement of aquatic animals, including fish and terrestrial animals,

424 "Gretchen Stevens" (590238464)
01:03:20.785 --> 01:03:30.115
such as American mink, that travel and hunt along stream banks. Instead, to maintain the stream habitat continuity

425 "Gretchen Stevens" (590238464)
01:03:30.115 --> 01:03:41.305

the culvert should be wider than the stream bed, and the culvert bottom should be buried in the stream substrate or use an open arch culvert as the one shown here.

426 "Gretchen Stevens" (590238464)
01:03:41.490 --> 01:03:47.160
So that the stream bottom and stream bank are continuous all the way through the culvert.

427 "Gretchen Stevens" (590238464)
01:03:49.855 --> 01:03:57.265
We may not think about it much, but artificial night lighting creates big ecological problems around developed areas.

428 "Gretchen Stevens" (590238464)
01:03:58.345 --> 01:04:08.545
Night light can disorient, repel, attract, and trap or kill a wide range of organisms.

429 "Gretchen Stevens" (590238464)
01:04:08.575 --> 01:04:16.825
including moths, fireflies, other insects, birds, frogs, fish. It can reduce the

430 "Gretchen Stevens" (590238464)
01:04:17.160 --> 01:04:28.705
reproductive success of birds and amphibians, it can disrupt communication of all kinds between wildlife. It can disrupt bird migrations. It can interfere with predator-prey

431 "Gretchen Stevens" (590238464)
01:04:28.705 --> 01:04:36.625
relationships. Lights are very disruptive to the wildlife that depend on darkness and many kinds of wildlife do.

432 "Gretchen Stevens" (590238464)
01:04:37.500 --> 01:04:51.810
They depend on darkness for hunting and shelter, and, can be disruptive to the kinds of animals for whom light triggers certain metabolic or behavioral reactions.

433 "Gretchen Stevens" (590238464)
01:04:51.810 --> 01:05:02.640
Light pollution has been associated with huge reductions in local insect populations and is a significant contributor to worldwide insect declines.

434 "Gretchen Stevens" (590238464)
01:05:03.660 --> 01:05:14.940
Where outdoor lights are needed, their impacts can be reduced if they are motion activated, if they're shielded and downward directed.

435 "Gretchen Stevens" (590238464)
01:05:14.940 --> 01:05:29.820
Instead of outward or upward, and if they use insect-friendly light technology. LED lights that are filtered to be yellow or amber attract far fewer flying insects than blue or ultraviolet lights.

436 "Gretchen Stevens" (590238464)
01:05:29.820 --> 01:05:43.140
After this webinar, we'll send you a link to the web site of the International Dark Sky Association that provides lots of tips for preventing or minimizing light pollution.

437 "Gretchen Stevens" (590238464)
01:05:43.140 --> 01:05:47.490
So, we've talked about

438 "Gretchen Stevens" (590238464)
01:05:47.490 --> 01:06:01.345
some of the threats to biodiversity and some basic conservation principles, such as the importance of water infiltration to the soils, the importance of buffer zones, the importance of habitat connectivity and the values of large,

439 "Gretchen Stevens" (590238464)
01:06:01.375 --> 01:06:10.015
broad habitat areas to protect plants and animals from the multiple effects of habitat edges near human habitation.

440 "Gretchen Stevens" (590238464)
01:06:11.065 --> 01:06:17.485
So now I want to say a few things about the kinds of legal protections that are in place for biodiversity

441 "Gretchen Stevens" (590238464)
01:06:17.490 --> 01:06:32.245
today and water. Although wetlands and streams, get some protections from federal, state, and sometimes local laws. There are no existing protections for most parts of the landscape

442 "Gretchen Stevens" (590238464)
01:06:32.245 --> 01:06:44.785
and for many of the species of conservation concern. Despite the tremendous ecological values of upland habitat, for example, and the irreplaceable services that they provide to us,

443 "Gretchen Stevens" (590238464)
01:06:45.115 --> 01:06:47.485
upland areas are entirely unprotected.

444 "Gretchen Stevens" (590238464)
01:06:47.490 --> 01:06:49.560
With a, with a few rare exceptions.

445 "Gretchen Stevens" (590238464)
01:06:50.580 --> 01:06:56.670
And there are no existing protections for most plants and animals of conservation concern.

446 "Gretchen Stevens" (590238464)
01:06:57.085 --> 01:07:05.365
I'll say a little more about this in a few minutes, and will explain the ways that municipalities can fill in some of those gaps for biodiversity.

447 "Gretchen Stevens" (590238464)
01:07:06.415 --> 01:07:18.595
So, what do we have legal protections for? At the federal level are the Clean Water Act, and the endangered species act and at the state level is the New York State environmental conservation law.

448 "Gretchen Stevens" (590238464)
01:07:19.495 --> 01:07:26.575
Some municipalities in the Hudson Valley have local legislation offering additional protections for water, land, and

449 "Gretchen Stevens" (590238464)
01:07:26.670 --> 01:07:37.705
wildlife. We don't have time to go into the details of the various federal and state regulatory programs so I'll just mention some of the highlights, but for those of you who want more information

450 "Gretchen Stevens" (590238464)
01:07:37.735 --> 01:07:51.085
I recommend, seeing the webinar that we held in the fall which covered this topic at greater lengths. We'll send you a link to that and the other related webinars held by the Hudson River estuary Program.

451 "Gretchen Stevens" (590238464)
01:07:52.765 --> 01:08:05.725
The federal wetland program, which was administered by the Army Corps of Engineers, regulates activities in perennial streams, and in some intermittent streams and in wetlands of all sizes.

452 "Gretchen Stevens" (590238464)
01:08:05.725 --> 01:08:13.195
That are connected to perennial streams or large water bodies, or to certain intermittent streams. The filling of wetlands

453 "Gretchen Stevens" (590238464)

01:08:13.195 --> 01:08:21.925
and disturbance of the bed and banks of streams requires a permit from the Army Corps of Engineers, but many small streams and many small

454 "Gretchen Stevens" (590238464)
01:08:21.930 --> 01:08:27.000
isolated wetlands, such as vernal pools, are unprotected in the federal program.

455 "Gretchen Stevens" (590238464)
01:08:28.435 --> 01:08:38.575
There are wetland maps produced by the US Fish Wildlife Service. These are the National Wetland Inventory maps, but these are just informational. They have no legal significance.

456 "Gretchen Stevens" (590238464)
01:08:38.935 --> 01:08:47.125
The maps include some wetlands that are not jurisdictional under the current federal program and also omit many wetlands

457 "Gretchen Stevens" (590238464)
01:08:47.125 --> 01:08:57.985
that are jurisdictional. The Army Corps understands that the maps are incomplete and inaccurate and does not use them to determine the extent of federal wetland regulation.

458 "Gretchen Stevens" (590238464)
01:08:58.020 --> 01:09:11.400
Instead, they do insist on on-the-ground identification and delineation of wetlands and a case-by-case determination of jurisdiction. So, you all should do the same.

459 "Gretchen Stevens" (590238464)
01:09:12.865 --> 01:09:23.545
Under the New York State environmental conservation law, activities are regulated in the larger streams that the DEC has classified according to their best usage.

460 "Gretchen Stevens" (590238464)
01:09:24.415 --> 01:09:32.095
Also, all tidal wetlands that appear on the tidal wetlands inventory maps, and all non-tidal

461 "Gretchen Stevens" (590238464)
01:09:32.095 --> 01:09:41.305
wetlands of 12.4 acres and larger that appear on the freshwater wetlands maps, and in a few smaller wetlands of unusual

462 "Gretchen Stevens" (590238464)
01:09:41.400 --> 01:09:51.955

importance if they are depicted on the freshwater wetlands map, and also in a 100 foot wide adjacent area around those jurisdictional wetlands.

463 "Gretchen Stevens" (590238464)
01:09:52.945 --> 01:09:58.405
But small streams and most small wetlands are unprotected in the state program.

464 "Gretchen Stevens" (590238464)
01:10:00.415 --> 01:10:12.205
In the New York state, a budget bill of 2022, the state assembly [legislature] passed significant reforms to the state freshwater wetland regulatory program. These do not take effect right away.

465 "Gretchen Stevens" (590238464)
01:10:12.205 --> 01:10:26.275
But eventually the reforms will eliminate the jurisdictional use of the existing state freshwater wetlands maps. That won't happen until 2025. That will lower the minimum size for jurisdictional wetlands.

466 "Gretchen Stevens" (590238464)
01:10:26.275 --> 01:10:29.035
It will lower the minimum size for jurisdictional wetlands

467 "Gretchen Stevens" (590238464)
01:10:29.130 --> 01:10:35.610
from 12.4 to 7.4 acres. That won't happen until 2028 and

468 "Gretchen Stevens" (590238464)
01:10:35.905 --> 01:10:48.025
they will include additional criteria for identifying smaller wetlands of unusual local importance so that many more small wetlands might be included. But none of these will happen right away.

469 "Gretchen Stevens" (590238464)
01:10:48.025 --> 01:10:51.685
So we're living with the existing program for the time being.

470 "Gretchen Stevens" (590238464)
01:10:54.205 --> 01:11:02.095
So you can see that many small streams and isolated wetlands remain unprotected by federal and state laws,

471 "Gretchen Stevens" (590238464)
01:11:02.125 --> 01:11:12.565
even though they have great ecological value themselves and are important for maintaining the quality and quantity of water in larger water bodies, and in groundwater.

472 "Gretchen Stevens" (590238464)
01:11:12.955 --> 01:11:22.645
But municipalities may adopt local legislation to extend protections to all the streams and wetlands that don't fall under state or federal jurisdiction.

473 "Gretchen Stevens" (590238464)
01:11:22.650 --> 01:11:34.620
And many municipalities have done, so I'll say a little more about that in a minute but first, I want to say a few things about protections for rare species.

474 "Gretchen Stevens" (590238464)
01:11:34.620 --> 01:11:38.040
While we should

475 "Gretchen Stevens" (590238464)
01:11:38.040 --> 01:11:52.705
first of all assume that all native species of plants and animals are important to maintaining intact ecosystems, rare species and rare habitats are often in the greatest danger of disappearing from our landscapes.

476 "Gretchen Stevens" (590238464)
01:11:53.665 --> 01:12:08.035
Some rare species are at or near the edge of their geographic range and are living close to the limits of their environmental tolerances. Some are surviving at locations that are disjunct from their main populations and they may have

477 "Gretchen Stevens" (590238464)
01:12:08.065 --> 01:12:11.125
limited resilience due to a depleted gene pool.

478 "Gretchen Stevens" (590238464)
01:12:11.755 --> 01:12:22.285
Some are in, they occur in rare habitat, or in habitats that have been stressed by, for example, fragmentation or pollution or extreme weather events.

479 "Gretchen Stevens" (590238464)
01:12:22.945 --> 01:12:35.365
The decline or disappearance of rare species often indicates a degraded environment, and can alert us to the needs for protection and restoration before other species or communities are lost.

480 "Gretchen Stevens" (590238464)
01:12:36.865 --> 01:12:50.845
For those reasons, we think rare species and rare communities deserve special attention when we're setting priorities for land and water conservation. So, to what extent are rare species protected?

481 "Gretchen Stevens" (590238464)
01:12:51.960 --> 01:13:06.415
Well, we don't have time to cover the details of the state and federal protections for various species, but the program held a webinar on this topic last January. We'll send you a link to that recording for now. Here's a quick summary.

482 "Gretchen Stevens" (590238464)
01:13:07.135 --> 01:13:21.955
The federally listed, and New York State-listed endangered and threatened animals do receive significant regulatory protections from harassment, harm or trading, and the

483 "Gretchen Stevens" (590238464)
01:13:21.960 --> 01:13:23.790
habitats where they are

484 "Gretchen Stevens" (590238464)
01:13:23.815 --> 01:13:30.925
known to occur, can also be protected. Endangered and threatened plants are protected at the federal level

485 "Gretchen Stevens" (590238464)
01:13:31.225 --> 01:13:45.145
only if they are involved in federal projects, or in projects needing federal approvals, or in interstate or international trade. And are protected at the state level only if the landowner wishes to do so.

486 "Gretchen Stevens" (590238464)
01:13:46.645 --> 01:13:57.325
There are several other categories of rarity or conservation concern that have no legal weight, but are still important indicators for ecologists and conservation planners.

487 "Gretchen Stevens" (590238464)
01:13:57.535 --> 01:14:04.675
For example, the New York state environmental conservation law lists some animals as species of special concern.

488 "Gretchen Stevens" (590238464)
01:14:05.305 --> 01:14:15.055
These are species that warrant attention and conservation consideration, but current information does not yet justify listing them as threatened or endangered.

489 "Gretchen Stevens" (590238464)
01:14:15.630 --> 01:14:22.735

DEC also has a list of species of greatest conservation need, which is published in the state wildlife action plan.

490 "Gretchen Stevens" (590238464)
01:14:23.185 --> 01:14:35.785
The list includes all the animals that that are on the federal or state endangered and threatened lists, and also includes other animal species that are known to be rare or declining. The New York Natural Heritage Program,

491 "Gretchen Stevens" (590238464)
01:14:35.785 --> 01:14:45.625
which acts as a clearing house for information on rare species and significant natural communities in the state, lists and ranks plants and animals according

492 "Gretchen Stevens" (590238464)
01:14:45.630 --> 01:15:00.300
to their known rarity status, in a different ranking system from the one that state uses. Species are ranked as critically imperiled:S1, imperiled: S2, or vulnerable: S3.

493 "Gretchen Stevens" (590238464)
01:15:01.255 --> 01:15:15.415
Audubon New York has a list of priority birds for the region that Audubon and other conservation organizations, and agencies have deemed to be of regional or national conservation concern due to their population status and trends.

494 "Gretchen Stevens" (590238464)
01:15:16.045 --> 01:15:30.205
And in addition there are a few regional lists of rare species compiled by county agencies or others, but only the formal lists of federal and New York state endangered

495 "Gretchen Stevens" (590238464)
01:15:30.300 --> 01:15:41.515
and threatened species receive any legal protections from the federal or state governments. But all of these other listings are important for alerting public agencies,

496 "Gretchen Stevens" (590238464)
01:15:41.665 --> 01:15:54.175
Landowners, and developers to additional species that are declining or vulnerable to present in future changes in land uses, and the climate. And should certainly be considered in conservation planning.

497 "Gretchen Stevens" (590238464)
01:15:56.455 --> 01:16:10.525
So what to do about that? Municipalities are authorized by New York state to adopt local legislation and other measures to strengthen protections for water and biological resources. Many communities

498 "Gretchen Stevens" (590238464)
01:16:10.735 --> 01:16:15.655
have revised their local codes, or adopted non-regulatory measures for these purposes.

499 "Gretchen Stevens" (590238464)
01:16:16.525 --> 01:16:25.945
Any such legislation though should be based on the concerns and policy objectives and priorities outlined in the municipal conservation [comprehensive] plan

500 "Gretchen Stevens" (590238464)
01:16:27.115 --> 01:16:38.455
and municipalities might have other documents, such as an open space plan or natural resources inventory, or groundwater protection plan, or a farmland protection plan,

501 "Gretchen Stevens" (590238464)
01:16:38.845 --> 01:16:53.185
which can provide the scientific or cultural or practical underpinnings for new legislation. For example, some communities have adopted wetland and watercourse laws that protect many small streams and wetlands

502 "Gretchen Stevens" (590238464)
01:16:53.935 --> 01:16:57.055
that don't fall under the state or federal jurisdiction.

503 "Gretchen Stevens" (590238464)
01:16:58.195 --> 01:17:09.325
Municipal standards for the design and review and the requirements of subdivisions can incorporate conservation designs, can incorporate open space protections,

504 "Gretchen Stevens" (590238464)
01:17:09.385 --> 01:17:23.095
buffer zones around sensitive areas, and other conservation measures. The review standards for all land development projects can be updated to require that the needs of plants and animals of

505 "Gretchen Stevens" (590238464)
01:17:23.520 --> 01:17:27.150
conservation concern be considered.

506 "Gretchen Stevens" (590238464)
01:17:28.075 --> 01:17:41.365
Many municipalities have added conservation overlay zones to their zoning ordinance to protect especially sensitive areas, such as drinking water aquifers, or reservoirs, habitat for rare species, or scenic areas.

507 "Gretchen Stevens" (590238464)
01:17:42.535 --> 01:17:56.995
And a municipality can adopt stormwater management regulations that are more rigorous in those imposed by the state. But even without new legislation, a municipality could adopt procedural measures to ensure that biodiversity and

508 "Gretchen Stevens" (590238464)
01:17:57.150 --> 01:18:09.655
water issues are addressed during environmental reviews of land development projects. For example, requiring that land use applicants conduct a habitat assessment before designing their project,

509 "Gretchen Stevens" (590238464)
01:18:10.165 --> 01:18:23.935
or requiring that members of the planning board or CAC visit each site prior to planning board decisions on development projects, or requiring that environmental reviews consider off site

510 "Gretchen Stevens" (590238464)
01:18:23.965 --> 01:18:27.025
landscape connectivity, or

511 "Gretchen Stevens" (590238464)
01:18:27.150 --> 01:18:39.810
requiring that land new applicants consult the local or county natural resources inventory or open space plan if there is one and design the project with the protection of important resources in mind.

512 "Gretchen Stevens" (590238464)
01:18:40.645 --> 01:18:54.955
So, those are just some ideas for you. That's all that I had wanted to say, and I don't know how we're doing on time, but we should have some time now for questions.

513 "Gretchen Stevens" (590238464)
01:18:55.015 --> 01:19:03.625
Both questions lingering from Ingrid’s presentation and from what I've just said, I will

514 "Christine Vanderlan" (1024215808)
01:19:03.900 --> 01:19:07.950
return the screen back to you, Christine.

515 "Christine Vanderlan" (1024215808)
01:19:07.950 --> 01:19:12.480
Thank you, Gretchen.

516 "Christine Vanderlan" (1024215808)

01:19:14.965 --> 01:19:29.785
You addressed a number of questions that had come in earlier as you spoke. So that's terrific. And I know that Ingrid has been attempting to respond to some directly in the chat. And for questions that we don't get to during the live session,

517 "Christine Vanderlan" (1024215808)
01:19:29.785 --> 01:19:42.415
we will try to follow up if we have your email address. Ff you provided that when you registered, then hopefully we'll be able to get some kind of response to you that way.

518 "Christine Vanderlan" (1024215808)
01:19:42.480 --> 01:19:46.050
So, I need to take a moment to kind of scroll through

519 "Ingrid Haeckel" (1813459200)
01:19:47.400 --> 01:19:51.750
and see, what is not answered.

520 "Christine Vanderlan" (1024215808)
01:19:51.750 --> 01:19:57.660
Yeah, I have been answering things in the chat and Q. and A.

521 "Christine Vanderlan" (1024215808)
01:19:57.660 --> 01:20:02.760
One thing that came up in a few different ways

522 "Christine Vanderlan" (1024215808)
01:20:02.760 --> 01:20:12.510
and I don't know if you responded fully, but, you know, a couple people touched on buffers, wetland buffers and it sounded like there's challenges with

523 "Christine Vanderlan" (1024215808)
01:20:12.510 --> 01:20:17.130
you know, where there may be a buffer and a local regulation, whether.

524 "Christine Vanderlan" (1024215808)
01:20:17.130 --> 01:20:25.440
individual projects are being held to that, or not, kind of challenges of enforcing or balancing what could be allowed in a buffer and what

525 "Christine Vanderlan" (1024215808)
01:20:25.440 --> 01:20:39.810

maybe shouldn't be allowed, in terms of, you know, expansion of an impervious surface. So, I don't know if you want to talk a little bit about buffer areas and maybe some considerations or good practices and

526 "Gretchen Stevens" (590238464)
01:20:40.585 --> 01:20:52.195
local protection of those areas. I can say, a couple of things, and Ingrid can chime in, you know, as for what can and cannot be allowed.

527 "Gretchen Stevens" (590238464)
01:20:53.155 --> 01:20:56.905
I think that I think the state regulates

528 "Gretchen Stevens" (590238464)
01:20:57.180 --> 01:21:05.280
the buffer zone pretty much the same way they regulate the wetland area itself.

529 "Gretchen Stevens" (590238464)
01:21:05.575 --> 01:21:17.605
And I think that's a good policy. The point is to keep the buffer zone as undisturbed as possible, both the vegetation in the buffer zone, and the soils in the buffer zone.

530 "Gretchen Stevens" (590238464)
01:21:18.115 --> 01:21:28.765
That is the best way to protect the wetland or stream resource, or the other sensitive area of concern. .

531 "Gretchen Stevens" (590238464)
01:21:30.745 --> 01:21:38.305
You know, putting a trail through a buffer zone may not be a problem.

532 "Gretchen Stevens" (590238464)
01:21:38.335 --> 01:21:50.545
As long as the trail is located in a way that is least disturbing to the animals that might be occurring in a wetland.

533 "Gretchen Stevens" (590238464)
01:21:51.150 --> 01:22:03.270
But, you know, that would be my recommendation is to regulate it, the buffer zone, in just about the same way that you regulate the habitat area of concern.

534 "Ingrid Haeckel" (1813459200)
01:22:05.070 --> 01:22:09.300
Yeah, I.

535 "Ingrid Haeckel" (1813459200)
01:22:09.300 --> 01:22:19.800
I guess I think this is not an uncommon issue for communities that do have regulations in effect.

536 "Ingrid Haeckel" (1813459200)
01:22:19.800 --> 01:22:27.630
That set up a permitting system for projects within wetland buffer areas.

537 "Ingrid Haeckel" (1813459200)
01:22:27.630 --> 01:22:32.880
Because those regulations are, I mean, that they vary quite a bit,

538 "Ingrid Haeckel" (1813459200)
01:22:32.880 --> 01:22:36.450
you have to look at your particular code and there may be,

539 "Ingrid Haeckel" (1813459200)
01:22:36.450 --> 01:22:45.360
if it's becoming a problem where a lot of projects are still being approved in those areas, then perhaps it's.

540 "Ingrid Haeckel" (1813459200)
01:22:45.360 --> 01:22:49.320
an indication that you may want to

541 "Ingrid Haeckel" (1813459200)
01:22:49.320 --> 01:22:56.100
revise the code, or look back at how it, how the code is helping to guide those decisions.

542 "Ingrid Haeckel" (1813459200)
01:22:57.270 --> 01:23:02.610
No, but it's very hard, you know, to

543 "Ingrid Haeckel" (1813459200)
01:23:02.610 --> 01:23:11.640
comment. We can't comment on specific cases or situations and often the are decision makers are, where they are weighing

544 "Christine Vanderlan" (1024215808)
01:23:11.640 --> 01:23:15.300
a lot of considerations in granting those approvals.

545 "Christine Vanderlan" (1024215808)
01:23:20.545 --> 01:23:26.035

So, I thought Ingrid, in a response to another question about ways to get involved locally,

546 "Christine Vanderlan" (1024215808)
01:23:26.455 --> 01:23:37.375
you mentioned conservation advisory councils and boards, and I don't know if you want to just expand on what those councils are and what they do and how they might be engaged in supporting the kinds of things that

547 "Ingrid Haeckel" (1813459200)
01:23:37.680 --> 01:23:45.865
have been talked about today. Sure. Conservation advisory councils and boards are authorized in New York.

548 "Ingrid Haeckel" (1813459200)
01:23:46.075 --> 01:23:59.755
They provide an advisory role to town boards and planning boards and are often the entities leading local efforts to inventory and plan for natural areas,

549 "Ingrid Haeckel" (1813459200)
01:24:00.085 --> 01:24:03.295
developing natural resource inventories and open space plans.

550 "Ingrid Haeckel" (1813459200)
01:24:03.570 --> 01:24:07.860
They conduct a wide variety of

551 "Ingrid Haeckel" (1813459200)
01:24:07.860 --> 01:24:13.530
outreach and education efforts. In some cases, they can be really involved in stewardship of

552 "Ingrid Haeckel" (1813459200)
01:24:13.530 --> 01:24:17.550
local lands and so I

553 "Ingrid Haeckel" (1813459200)
01:24:17.550 --> 01:24:26.100
definitely encourage you, if you're not already involved with the CAC to look into it. If your community doesn't have one, we can help provide some resources on getting one started.

554 "Ingrid Haeckel" (1813459200)
01:24:26.100 --> 01:24:34.320
And, we've done other programs on them in the past. So also look back to the webinar recordings

555 "Ingrid Haeckel" (1813459200)

01:24:34.320 --> 01:24:38.820
for more info, but I would say for those who are involved with,

556 "Ingrid Haeckel" (1813459200)
01:24:38.820 --> 01:24:49.710
are involved in project review, and in particular conservation boards have a formal role in reviewing projects that are coming before the planning board.

557 "Ingrid Haeckel" (1813459200)
01:24:49.710 --> 01:25:04.290
And can help out by pulling together information about potential environmental impacts, and documenting resources on a site and in the nearby area. They can assist with going on field visits. And

558 "Ingrid Haeckel" (1813459200)
01:25:04.290 --> 01:25:07.980
provide a variety of roles in that way.

559 "Christine Vanderlan" (1024215808)
01:25:16.795 --> 01:25:29.395
So, we've received a question about the environmental impact of a conventional subdivision on a site with wetlands, including stream and upland habitat, wet meadows,

560 "Christine Vanderlan" (1024215808)
01:25:30.025 --> 01:25:36.505
which are in a degraded state due to overgrazing. Not sure

561 "Christine Vanderlan" (1024215808)
01:25:37.110 --> 01:25:46.680
how much you might be able to comment on that kind of scenario but if there are some kind of things that come to mind that the person might be

562 "Gretchen Stevens" (590238464)
01:25:46.680 --> 01:25:50.940
wanting to consider in looking at a site like that.

563 "Gretchen Stevens" (590238464)
01:25:50.940 --> 01:25:56.370
.

564 "Gretchen Stevens" (590238464)
01:25:56.815 --> 01:26:11.485
One question for that person, not that they'll be able to answer but, is the conventional subdivision the only option or is there an option in your municipality for a conservation subdivision? That

565 "Gretchen Stevens" (590238464)
01:26:11.965 --> 01:26:21.865
might be a, a good way to solve some of the problems around those sensitive areas that you mentioned.

566 "Gretchen Stevens" (590238464)
01:26:23.275 --> 01:26:37.585
But if you are stuck with a conventional subdivision, the planning board can still help the applicant design that subdivision in, in ways that

567 "Gretchen Stevens" (590238464)
01:26:38.125 --> 01:26:52.195
are more protective of those areas. In ways where the access roads and driveways are distant from

568 "Gretchen Stevens" (590238464)
01:26:52.320 --> 01:26:55.470
.

569 "Gretchen Stevens" (590238464)
01:26:55.470 --> 01:27:07.350
streams and wetlands, as much as possible,where they cross them in the least disturbing ways and, , where

570 "Gretchen Stevens" (590238464)
01:27:07.350 --> 01:27:12.090
each of the lots has space

571 "Gretchen Stevens" (590238464)
01:27:12.415 --> 01:27:26.665
and in good locations, for driveways and houses, and yards, that will be least disturbing of the most sensitive areas.

572 "Gretchen Stevens" (590238464)
01:27:26.965 --> 01:27:41.725
Now, that can be tricky on some sites. But, with some thought, it can the, the subdivision can usually be designed to

573 "Gretchen Stevens" (590238464)
01:27:42.090 --> 01:27:46.530
improve the outcomes.

574 "Gretchen Stevens" (590238464)
01:27:47.425 --> 01:28:01.465

Many towns do have a conservation subdivision option, and on a parcel that's proposed for subdivision where there are a lot of sensitive resources,

575 "Gretchen Stevens" (590238464)
01:28:01.495 --> 01:28:11.875
including just something like a large area of intact forest, that conservation subdivision design might be the best option.

576 "Christine Vanderlan" (1024215808)
01:28:14.760 --> 01:28:18.600
Thank you.

577 "Ingrid Haeckel" (1813459200)
01:28:19.950 --> 01:28:27.150
Ingrid, I don't know if you've spotted any additional questions I might have missed.

578 "Ingrid Haeckel" (1813459200)
01:28:27.150 --> 01:28:38.730
There's some question asking about the conservation value of a 100-foot buffer, compared to a 200 or 400 foot buffer and I presume this is referring to wetland buffers.

579 "Ingrid Haeckel" (1813459200)
01:28:38.730 --> 01:28:42.570
So I

580 "Ingrid Haeckel" (1813459200)
01:28:42.570 --> 01:28:53.940
I'd have to again, would refer you back to the Planners Guide to Wetland Buffers for the discussion on this topic, but generally speaking that a 100 foot buffer is

581 "Ingrid Haeckel" (1813459200)
01:28:53.940 --> 01:28:57.210
more likely to

582 "Ingrid Haeckel" (1813459200)
01:28:57.210 --> 01:29:01.500
provide water quality related benefits.

583 "Ingrid Haeckel" (1813459200)
01:29:01.500 --> 01:29:06.840

some, but not all, you know, for some nutrient

584 "Ingrid Haeckel" (1813459200)

01:29:06.840 --> 01:29:10.620
filtering capacity might need to require a wider buffer than that.

585 "Ingrid Haeckel" (1813459200)
01:29:10.620 --> 01:29:13.860
But that wider buffers

586 "Ingrid Haeckel" (1813459200)
01:29:13.860 --> 01:29:19.650
are more valuable for wildlife habitat because wildlife will also will often be using a much wider

587 "Ingrid Haeckel" (1813459200)
01:29:19.650 --> 01:29:23.580
buffer adjacent to streams and wetlands.

588 "Gretchen Stevens" (590238464)
01:29:26.970 --> 01:29:33.720
Gretchen, I'm not sure if you want to add anything to that. No, that that sounds good. And, yeah.

589 "Gretchen Stevens" (590238464)
01:29:34.375 --> 01:29:49.195
A lot of wildlife do use broad areas along streams. Some of them travel in areas much wider than 200 feet. But, 200 feet will serve a lot of wildlife purposes.

590 "Christine Vanderlan" (1024215808)
01:29:49.195 --> 01:29:50.395
wildlife purposes

591 "Christine Vanderlan" (1024215808)
01:29:55.200 --> 01:30:00.655
So, that brings us to 2:30. Thank you. Again, Ingrid and Gretchen and thank you,

592 "Christine Vanderlan" (1024215808)
01:30:00.655 --> 01:30:12.865
everyone who joined today. Look for a follow up message in your email with links that were discussed today and a certificate of attendance as well. And then please take a couple of minutes,

593 "Christine Vanderlan" (1024215808)
01:30:12.865 --> 01:30:19.645
you'll get this automatic pop up when you leave the webinar with just a few questions that will help us in planning future sessions. sessions

594 "Gretchen Stevens" (590238464)
01:30:19.950 --> 01:30:24.600

Thanks again and enjoy the rest of your afternoon.