

# Washington Square Park Eco Projects

# 2021 Report to NYC Parks Natural Resources Group

Observing wildlife longitudinally and Washington Square Park and phenology project



Washington Square Park Eco Projects

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2021 at a glance

2021

**23** Wildlife surveys

23 wildlife surveys were conducted in 2021



45 unique species of birds were observed in 2021 **03** Mammal species

Squirrels, Norway rats and mice are the three mammal species found in the park.

**14** Trees in the phenology project

14 individual trees are included in the phenology project

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All photos by WSP Eco Projects Sources available upon request



# Site description or About the park

Washington Square Park (WSP) is a 9.75 acre public park on unceded Lenape land in modern-day Greenwich Village. The park is owned and managed by the NYC Parks and Recreation Department. WSP accommodates active and passive recreation. There are three playgrounds/play areas and two dog parks. The central N-S axis of the park is impervious and houses the Washington Arch and the fountain. The west-east spine of the park is also impervious; the Holley monument and Garibaldi statue are located along this axis. The tree canopy cover is approximately 66% by our estimate with an understory of small trees, shrubs, herbs and grasses, and lawn.

# Project description

The primary purpose of the Wildlife Survey is to develop a long-term catalog of the park's wildlife population. A second goal of the survey is to provide community science and public engagement opportunities.

The primary purpose of the Phenology Project is to run a long-term plant phenology monitoring program in Washington Square Park to create a baseline phenology dataset for the park.

The NYC Parks Natural Resources Group first issued a permit for the WSP Wildlife Survey in 2016. This report describes the methods and findings of the 2021 survey year.



Great Backyard Bird Count: Saturday, February 2021: Eight avian species observed Christmas Day Bird Count: Sunday, December 2021: Seven avian species observed

Special bird counts

- provide a snapshot of bird life in the park
- contribute to hyper-local data through community science
- engage community in participatory science opportunities
- provide community with direct learning opportunities

## **Results: Birds**

2021: Forty-five avian species were observed in Washington Square Park Appendix i

**Common Yellowthroat** 

State of the birds over five year time period



Table #1: Five years of data collection demonstrate that an average of 40.6 bird species use the park each year. In 2021, 45 species were observed in Washington Square park. 2020 had the greatest number of species observed (49).

### Who's park, our park: The most abundant species

Migratory bird species are documented using Washington Square Park, which provides food, shelter in forage especially during fall and spring migration.

Abundance, ranked by species, demonstrates that Pigeons and House Sparrows are the most common birds in Washington Square Park. This is likely due to the largely built environment, anthropogenic disturbance and the success of these two introduced species.

Native generalist such as American Robin and Mourning Dove call Washington Square Park home year-round. Species richness for 2021: 45

## Total avian abundance

23 surveys, conducted demonstrate 4,012 individual birds using Washington Square Park in 2021

Total number of individuals: native species

776



#### 5 most abundant species based on # of inididuals

- Pigeon (1,836)
- House Sparrow (1,312)
- American Robin (179)
- White-throated Sparrow (160)
- Mourning Dove (112)



3,236

#### 5 most abundant native species

- American Robin (179)
- White-throated Sparrow (160)
- Mourning Dove (112)
- Blue jay (36)
- Dark-eyed Junco (34)

#### Native bird speces

24 % of birds that use Washington Square Park are native speces

## **Introduced species 76%**

Pigeons and House Sparrows, both introduced species, are the most abundant species in Washington Square park. Both are commonly found in places of human disturbance, such as city parks, and are highly adaptable species.

European Starling are another introduced species found in Washington Square Park, but are not one of most abundant species. European Starling can be found in large numbers in other NYC parks.

Question: why is this species not more numerous in Washington Square Park?

House Sparrows and European Starling can outcompete native species for nesting habitat.



House Sparrow gathering nesting material

## Snapshot: Red-tailed Hawk



To the delight of the community, highly charismatic Red-tailed Hawks have called Washington Square Park home since 2011.

Red-tailed Hawks provide important ecological services by consuming large numbers of rodents such as rats and birds such as Pigeons.

From 2011-2019 NYU hosted a webcam, which provided an intimate look at the lives of these nesting birds and ensured detailed information for the NYC Parks, urban wildlife unit, which oversees the raptor nest watch program

Washington Square Park Eco projects will advocate for the webcam to be reinstated.

#### 2021 at a glance

- Nesting pair
   A new male joined the female in 2021.
- Nest building
   The pair maintained the historic nest site on Bobst Library

#### 🗸 Brooding

The pair sat on three eggs

#### / Outcome

The nesting attempt was unsuccessful and no eggs hatched.

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#### Snapshot: Woodpecker species



## **Discussion**

Four species of charismatic of woodpecker utilize Washington Square Park for food and forage. They are present in three seasons: Fall, Winter and Spring.

It is likely that the tree palette including a variety of tree species and size, with many large, well established trees, supports the dietary needs of woodpecker species.

Yellow-bellied Sapsuckers are the most abundant woodpecker species and utilize many of the conifers. Their habit of making sap wells likely supports other species of birds, squirrels and invertebrate species as they also forage at the sap wells created by Yellowbellied Sapsuckers.

#### 2021 at a glance

- Four woodpecker Species
   In ranked order by abundance
  - Yellow-bellied Sapsucker
  - Red-bellied Woodpecker
  - Downy Woodpecker
  - Northern Flicker

#### **Presence**

Woodpecker species observed during 16 surveys of 23 conducted

#### 🗸 Timing

Woodpecker species observed throughout the year except during summer months: June, July and August

Numbers 41 individuals

#### Snapshot: Native sparrow species



## **Discussion**

Five native species of sparrow utilize Washington Square Park for food and forage. They are present in three seasons: Fall, Winter and Spring.

They utilize multiple areas in the park including shrubs, trees, tree canopy and lawns.

The majority of native sparrow species occur on lawns that are closed to the public, although they are also observed on lawns open for community enjoyment.

The presence of off-leash dogs on both opened and closed lawns was observed during multiple surveys in 2021. Off-leash dogs may impact species that utilize laws for foraging.

#### 2021 at a glance

- Five Native Sparrow Species
   In ranked order by abundance
  - White-throated Sparrow
  - Dark-eyed Junco
  - Chipping Sparrow
  - Song Sparrow
  - Eastern Towhee

#### Presence

Native sparrows species observed during 16 surveys of 23 conducted

#### Timing

Native sparrow species observed throughout the year except during summer months: June, July and August

Numbers
 225 individuals

#### Non-bird species 2021



## Wildlife survey conclusion

Washington Square Park supports generalist and specialist, resident, winter, and migratory birds and other wild animals. The park is considered an eBird hotspot with one hundred and sixteen species recorded from this location. While not designed nor explicitly managed with biodiversity in mind, the park is fulfilling its recreational functions and supporting bird biodiversity. However, the park's biodiversity value can be improved by considering vegetation choices when replacing lost plants or adding plants to the park as well as management strategies that foster stronger food webs.

Washington Square Park is classified as a "legacy park" which constrains the species replacement options. However, NYC Parks can select local and regional species that mimic the silhouette of park trees typically specified for to a legacy parks. (see appendix ii for plant recommendations)

#### **Recommendations for improving structure and function:**

Black and White Warbler eating a moth

Land management strageies

Regional plant choices and structural complexity

- Fill mid-level forest gap with small native trees, which were part of the historic ecology of the landscape
- Increase late fruiting plants to extend food resources into the winter
- More evergreen vegetation to extend food resources into winter
- Increase the beautiful "meadows" gardeners have created with more areas of native, high-forage herbaceous perennials and grasses to support birds, and beneficial insects
- Maintain small brush piles particularly beneath and between shrubs to provide habitat for insects and forage and movement corridors for birds
- Maintain leaf litter during fall (Sept - Nov) and spring (Mar - June) migration seasons
- Do not dead head perennial and grass seed heads as these plant features are food resources from late summer through winter.



## **Background**

Projects

The Phenology Project was launched in September 2019. The goals of the project are (1) to run a long-term plant phenology monitoring program in Washington Square Park, (2) to develop a plant phenology database, and (3) to provide community science environmental learning opportunities.

- to run a long-term plant phenology monitoring program in
- Washington Square Park,
- to develop a plant phenology database
- to provide community science opportunities.



# Washington Square Park Eco Projects

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The Phenology Project

## Page 1: Observation quantity dashboard

Figure #1 shows the phenology records by species and phenophase and site visits by month





## The Phenology Project

### Page 2: Observation activity dashboard



Figure #2 shows the activity of observers in the Phenology Project by month and includes the Nature's Notebook activity and total contributions







The Phenology Project

## Snapshot of three tree species

The data we have, show selected snapshots of three phenophases for different species for the time period Sept 2019 - Dec 2020 (Fig. ). The colored bars on the calendars indicate the observed presence of a phenophase. The gray bars denote the observed absence of a phenophase (Figure #3)



Star Magnolia flowers

<b>T</b> 1		
IU	IIptree	

Flowering dogwood

Sweetgum

2022	: Tuliptr	ee - Colo	ored leav	es or ne	edles						
2021	: Tuliptr	ee - Colo	ored leav	es or ne	edles						
2020	: Tuliptr	ee - Colo	ored leav	es or ne	edles					+ +++	
2019:	: Tuliptr	ee - Colo	ored leav	es or ne	edles	+ + +	+ +				
2022	: Flower	ring dög	vood - C	olored le	aves or	needles					• • • • •
2021	: Flowe	ring dog	wood - C	olored le	aves or	needles					
2020 2019	: Flower	ring dogv ring dogv	wood - C wood - C	olored le olored le	aves or aves or	needles needles	·····			+++-++	-+-+-+
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2021	: Sweet : Sweet	gum - Co gum - Co	olored le	aves or r aves or r	needles		·····	+	ŀ₩₩	· · - · · · · · · · · ·	
2019	: Sweet	gum - Co	olored le	aves or r	needles						
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A Nationa	d Phenolog	y Network.	www.usanp	n.org			0				

## Appendix i

#### 2021 avian species list

- 1. Pigeon, Columba livia domestica
- 2. Mourning Dove, Zenaida macroura
- 3. Double-crested Cormorant, Nannopterum auritum
- 4. Chimney Swift, Chaetura pelagica
- 5. Red-tailed Hawk, Buteo jamaicensis
- 6. Northern Flicker, Colaptes auratus
- 7. Yellow-bellied Sapsucker, Sphyrapicus varius
- 8. Red-bellied Woodpecker, Melanerpes carolinus
- 9. Downy Woodpecker, Dryobates pubescens 10. American Kestrel, Falco sparverius
- 11. Great Crested Flycatcher, Myiarchus crinitus
- 12. Blue Jay, Cyanocitta cristata
- 13. American Crow, Corvus brachyrhynchos
- 14. Tufted Titmouse, Baeolophus bicolor
- 15. Ruby-crowned Kinglet, Corthylio calendula
- 16. Golden-crowned Kinglet, Regulus satrapa
- 17. Brown Creeper, Certhia americana 18. House Wren, Troglodytes aedon
- 19. European Starling, Sturnus vulgaris
- 20. Gray Catbird, Dumetella carolinensis
- 21. Veery, Catharus fuscescens
- 22. Swainson's Thrush, Catharus ustulatus
- 23. Hermit Thrush, Catharus guttatus
- 24. American Robin, Turdus migratorias 25. House Sparrow, Passer domesticus
- 26. House Finch, Haemorphous mexicanus
- 27. Pine Siskin, Spinus pinus28. American Goldfinch, Spinus tristis
- 29. Chipping Sparrow, Spizella passerina
- 30. Dark-eyed Junco, Junco hyemalis
   31. White-throated Sparrow, Zonotrichia albicollis
- 32. Song Sparrow, Melospiza melodia
- 33. Eastern Towhee, Piplilo erythrophthalmus
- 34. Ovenbird, Seiurus aurocapilla
- 35. Black-and-white Warbler, Mniotilta varia
- 36, Common Yellowthroat, Geothlypis trichas
- American Redstart, Setophaga ruticilla
   Northern Parula, Setophaga americana
   Magnolia Warbler, Setophaga magnolia
- 40. Bay-breasted Warbler, Setophaga castenea
- 41. Black-throated Blue Warbler, Setophaga caerulescens
- 42. Black-throated Green Warbler, Setophaga virens
- 43. Wilson's Warbler, *Cardellina pusilla* 44. Common Grackle, *Quiscalus quisula*
- 45. Northern Cardinal, Parkesia noveboracensis

#### 2021 phenology tree species list

- American sycamore, Platanus occidentalis
   Eastern redbud, Cercis canadensis
   Ginkgo, Ginkgo biloba
   Flowering dogwood, Cornus florida
   Kousa dogwood, C. kousa
   Kwanzan cherry, Prunus serrulata
   Littleleaf linden, Tilia cordata
   Bed maple. Acer rubrum

- 8. Red maple, Acer rubrum

- 9. Star magnolia, Magnolia stellata
  10. Silver maple, A. saccharinum
  11. Swamp white oak, Quercus bicolor
  12. Tulip TreeTuliptree, Liriodendron tulipifera
  13. Yoshino cherry, Prunus x yedoensis