PROJECT WILDBIRD®

Food and Feeder Preferences of Wild Birds in the United States and Canada

Dr. David J. Horn, Principal Investigator
Department of Biology, Millikin University

A Research Project Supported by the Wild Bird Feeding Industry Research Foundation

Background

- Over 55 million Americans over the age of 16 feed wild birds or other wildlife around their homes, and spend more than 3 billion dollars on bird seed.

- While several studies have examined bird seed and feeder preferences, the most important questions have not yet been adequately answered.

Background (cont.)

TABLE 1: RELATIVE ATTRACTIVENESS OF BIRD SEEDS TO SELECTED COMMON BIRDS

	Black-Striped Sunflower		Canary		German (Golden) Millet		Niger (Thistle)		Oil (Black) Sunflower		Peanut Kernels		Red Proso Millet		Hulled Sunflower	
Blue jay	6	1	0	1	0	1	0	0	1	1	10	0	0	0	1	0
Cardinal	9	2	0	0	0	1	0	0	10	1	1	0	1	3	3	1
Chickadees	4	0	0	0	0	0	0	0	10	0	2	0	0	0	1	0
Evening grosbeak	7	0	0	0	0	0	0	0	10	0	0	0	0	0	2	0
Common grackle	10	1	1	5	0	1	0	1	5	3	4	0	1	0	9	1
American goldfinch	1	0	0	0	0	0	6	0	4	0	0	0	0	0	10	0
House finch	4	2	1	0	0	0	4	0	9	1	1	1	0	0	10	1
Purple finch	3	0	1	0	0	0	1	0	10	0	0	0	0	0	1	0
Tufted titmouse	4	0	0	0	0	0	0	0	2	0	10	0	0	0	0	0
Brown-headed cowbird	1	10	3	1	4	1	0	1	1	0	0	0	7	0	1	0
House (English) sparrow	2	10	5	2	5	1	0	1	2	1	2	0	4	0	2	2
Mourning dove	4	10	6	3	8	4	2	1	9	1	1	1	9	2	4	2
White-throated sparrow	7	8	4	5	5	2	1	1	6	4	10	0	6	2	9	1

- no or very little consumption

White Proso Millet | Fine Cracked Corn | Milo (Sorghum) | Hulled Oats | Peanut Hearts | Rape | Safflower | Wheat

(Geis 1980)

Opportunity

- For the Wild Bird Feeding Industry to conduct the most comprehensive scientific study ever performed on seed and feeder preferences of wild birds in the United States and Canada.

PROJECT WILDBIRD

Objectives – Observational Approach

- Understand the human dimensions of bird feeding such as why people feed birds and how to make the bird feeding experience better.

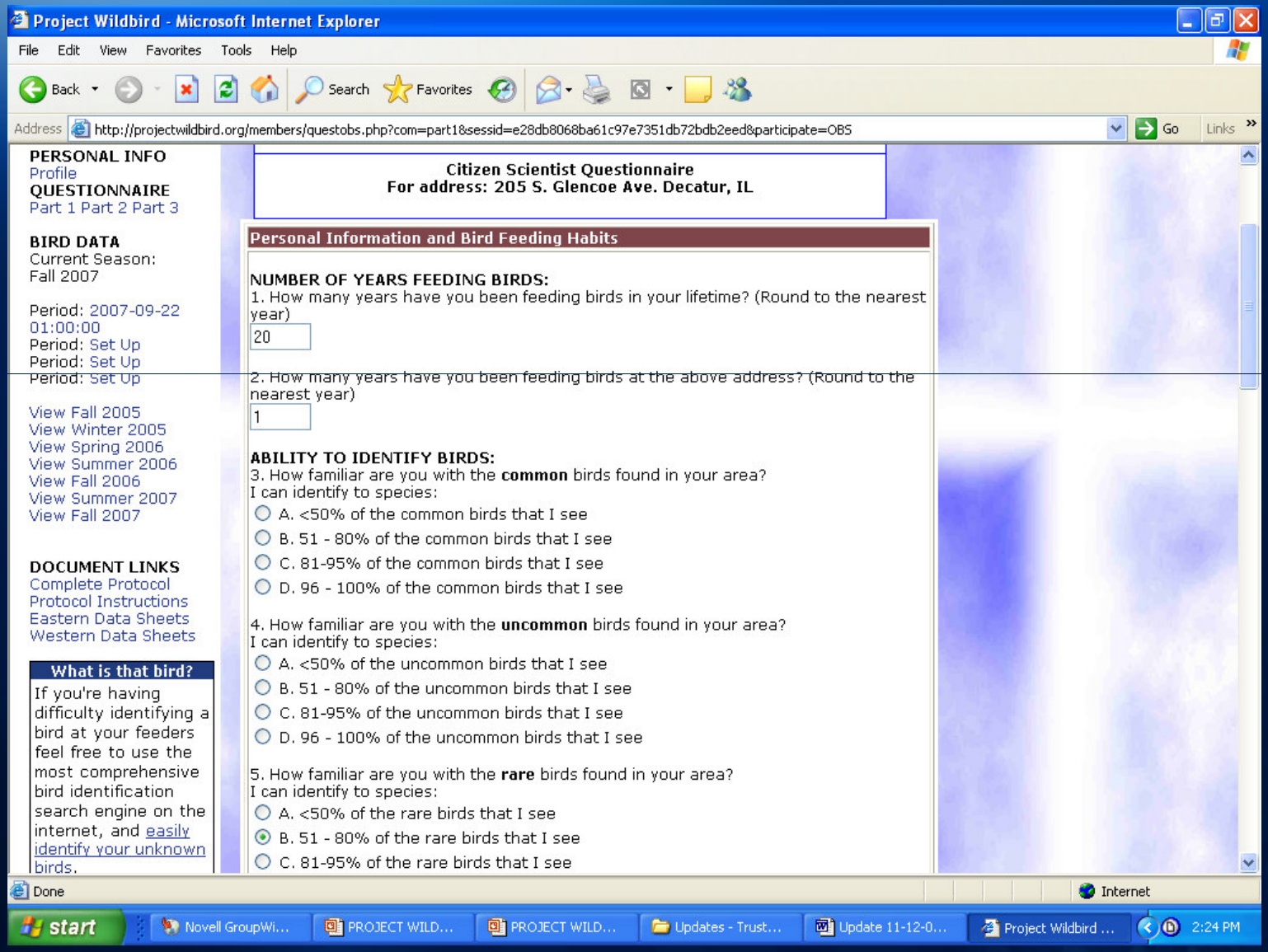
Method of research - Observational

- The study began winter 2005 and continued through fall 2008.

- Participants completed a questionnaire that asked questions in three general categories:

  - Why individuals feed birds and what could make the bird feeding experience better
  - What birds visit their feeders and what birds they would like to attract
  - What features of bird feeding products are most important to people who feed birds

Method of research - Observational Website – www.projectwildbird.org



Method of research - Observational

- Participants were recruited through newspaper advertisements, press releases, announcements on listserves, word-of-mouth, and the PROJECT WILDBIRD® website.

- Any individual could participate in the observational approach.

Results – Observational Approach

- 1,291 observational participants completed the questionnaire.

What is your gender?

- Female 68%
- Male 32%

What is your age group?

< 15	1%
15 – 24	2%
25 – 34	5%
35 – 44	14%
45 – 54	31%
55 – 64	29%
65 +	19%

What is the population of your city or town?

> 1 – 5,000	27%
> 5,001 – 25,000	30%
> 25,001 – 100,000	31%
> > 100,000	12%

How familiar are you with the common birds found in your area?

I can identify to species:

> < 50%	11%
> 51 – 80%	23%
> 81 – 95%	31%
> 96 – 100%	36%

How familiar are you with the rare birds found in your area?

I can identify to species:

> < 50%	62%
> 51 – 80%	24%
> 81 – 95%	10%
> 96 – 100%	4%

Why do you feed birds?

> Brings nature and beauty to the area	83%
> Enjoy the sound of birds in the yard	81%
> Want to help the birds	77%
> Hobby/Fun	74%
> Therapy/Relaxation	63%
> Learning bird behavior/Identifying species	61%
> As part of the landscaping	36%
> Maintain a list of bird species seen in yard	34%
> As an educational experience for children	23%
> Other	10%

* Respondents checked all that applied

Are you having a good experience feeding birds in your yard?

- Yes 95%
- No 5%

If no, what types of frustrations have you had feeding birds?

> Would like to attract more species of birds	14%
> Attracts pests (insects, rodents, squirrels, etc.)	11%
> Attracts undesirable birds	8%
> Would like to attract a greater number of birds	7%
> Too expensive	6%
> Feed is messy	3%
> Birds are messy	2%
> It is too difficult or inconvenient to clean feeders	2%
> It is too difficult or inconvenient to fill feeders	1%
> It is too difficult to purchase feeders and food locally	1%
> Other	6%

* Respondents checked all that applied

What do you consider to be the most common "undesirable" animal visiting your feeders?

> Squirrels	46%
> Blackbirds (i.e., cowbird, grackle, starling, etc.)	18%
> Rats and mice	7%
> Sparrows (i.e., House Sparrow)	7%
> Raccoons	5%
> Chipmunks	2%
> Deer	2%
> Bears	1%
> Opossums	1%
> Other	11%

During what seasons of the year do you feed birds?

> Winter	95%
> Spring	94%
> Summer	86%
> Fall	84%

* Respondents checked all that applied

If you do not feed birds in all seasons, why don't you feed birds year round?

- Birds can find food naturally for some periods of the year — 10%
- Too expensive — 2%
- I am not around to watch birds all seasons of the year — 1%
- Too time consuming to maintain feeders — 1%
- Other — 5%

* Respondents checked all that applied

What could make your bird feeding experience better?

> Attracting more species of birds	69%
> Attracting a greater number of birds	42%
> Less expensive products	40%
> No pests attracted to feeding	36%
> Less mess below the feeder	33%
> Better feeder design	31%
> Cleaner seed	23%
> Better seed storage products	16%
> Other	5%

* Respondents checked all that applied

What birds visit your feeders?

> Mourning Dove	89%
> Blue Jay	85%
> American Goldfinch	82%
> Black-capped Chickadee	79%
> Downy Woodpecker	76%
> Northern Cardinal	76%
> House Finch	74%
> House Sparrow	74%
> Dark-eyed Junco	65%
> Common Grackle	61%
> White-breasted Nuthatch	58%
> Tufted Titmouse	53%
> Purple Finch	51%

* Respondents checked all that applied

What birds would you like to attract to your feeders?

> Baltimore Oriole	56%
> Eastern Bluebird	50%
> Indigo Bunting	50%
> Ruby-throated Hummingbird	40%
> American Goldfinch	36%
> Rose-breasted Grosbeak	34%
> Purple Finch	33%
> Red-bellied Woodpecker	32%
> Downy Woodpecker	31%
> Evening Grosbeak	31%
> Northern Cardinal	31%
> Tufted Titmouse	31%
> Black-capped Chickadee	30%

* Respondents checked all that applied

What features are most important to you in the feeders you choose?

> Birds use the feeder	74%
> Bird feeder is easy to fill	72%
> Bird feeder is easy to clean	61%
> Bird feeder is resistant to undesirable species	55%
> Bird feeder has a large capacity	41%
> Bird feeder looks nice	33%
> Other	6%

* Respondents checked all that applied

What features are most important to you in the seeds you choose?

> Birds eat the seed	77%
> Seed is not messy	22%
> Seed only attracts species I am interested in	18%
> Seed lasts a long time	17%
> Other	8%

* Respondents checked all that applied

Discussion – Observational Approach

- Participants in the observational approach feed birds to bring nature and beauty to the area, and bird sounds to the yard. To make the bird feeding experience better, individuals want to attract more species of birds.

- The species people want to attract include common and uncommon seed-eating birds, as well as species that do not eat seed.

- The most important feature of bird seed is that birds eat the seed while the most important features of feeders are that birds use the feeder, and that the feeder is easy to fill.

Questions

Principal Investigator: Dr. David J. Horn

Project Coordinator: Ms. Stacey M. Shonkwiler

Objectives – Experimental Approach

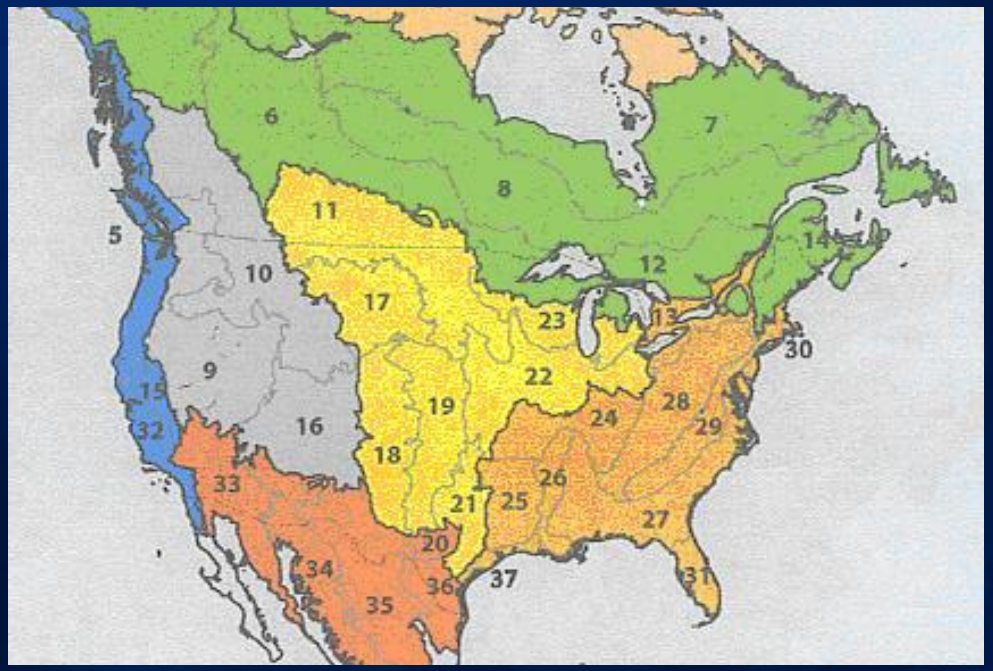
- What are the seed preferences of birds that use feeders in the U.S. and Canada?
- Are seed preferences of birds equivalent at different times of the year?
- Are seed preferences of birds equivalent in different regions of the U.S. and Canada?
- What are the feeder preferences of birds in the U.S. and Canada?
- Is there an interaction between seed preferences and feeder preferences?

Objectives – Experimental Approach

Method of research - Experimental

- The study began winter 2005 and continued through fall 2008.

- The study was conducted in the U.S. and Canada with four geographic regions being compared.



(Rich et al. 2004)

Method of research - Experimental

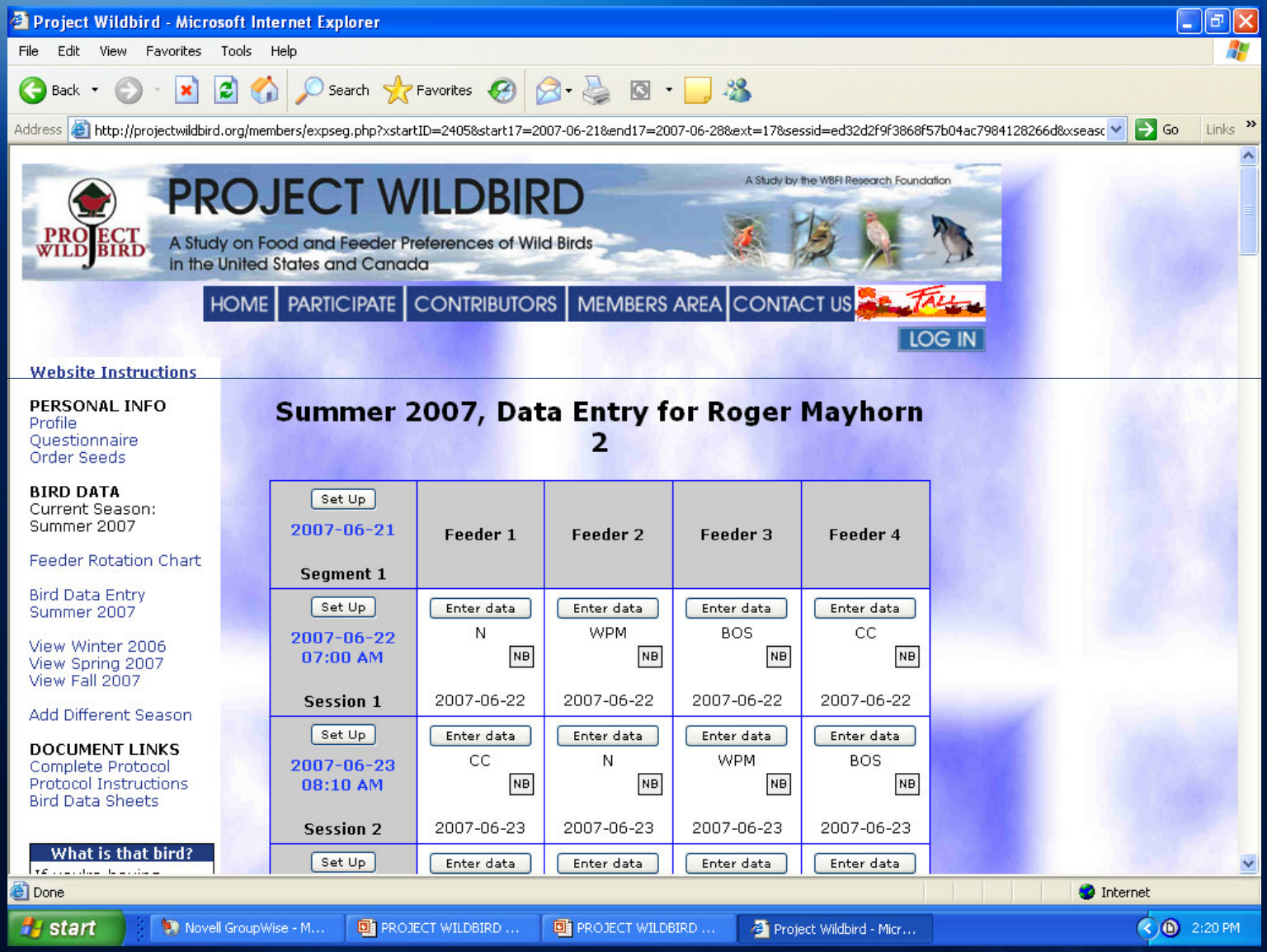
- Participants record bird visits at feeders:
  - Participants in the experimental approach were assigned specific feeder and seed combinations.
  - Participants recorded the number of each species of bird present at each feeder throughout the year.
  - Feed, feeders, poles, baffles and shipping were provided by the generous WBFI members here today.

Method of research - Experimental

"The birds are going through the black oil like candy. I fill the feeder each morning because they empty it each day. If I would do it, I could probably fill it twice a day."

- R. Mayhorn, Virginia

Method of research - Experimental Website – www.projectwildbird.org



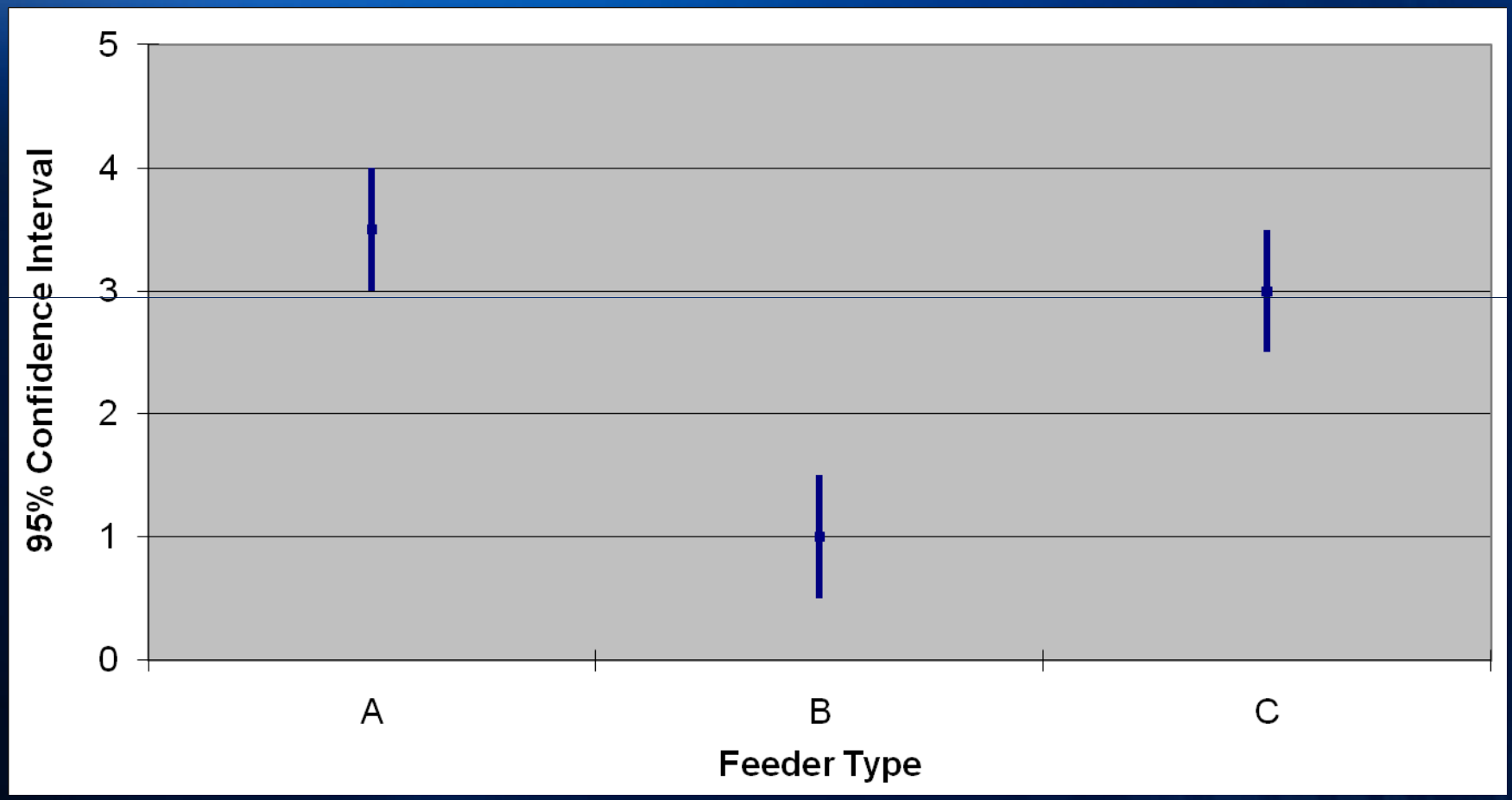
Method of research - Experimental

- Participants were recruited through newspaper advertisements, press releases, announcements on listserves, word-of-mouth, and the PROJECT WILDBIRD® website.

- Experimental approach participants were required to successfully complete two interviews to confirm their ability to identify birds and successfully complete the protocol.

Method of Research – Experimental

Interpreting confidence intervals

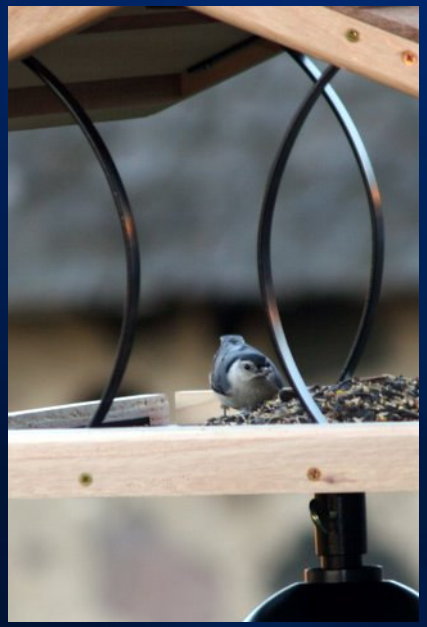


Results – Experimental approach

- Experimental approach had 174 participants from 38 states and 3 provinces in Canada, and 46 citizen scientists participated for a second year.

Results – Experimental approach

- Between winter 2005-fall 2008, 1,282,424 bird visits of 106 species were recorded during over 20,000, 45-minute observations.
- Seventeen species were observed during at least 1% of the total bird visits recorded.

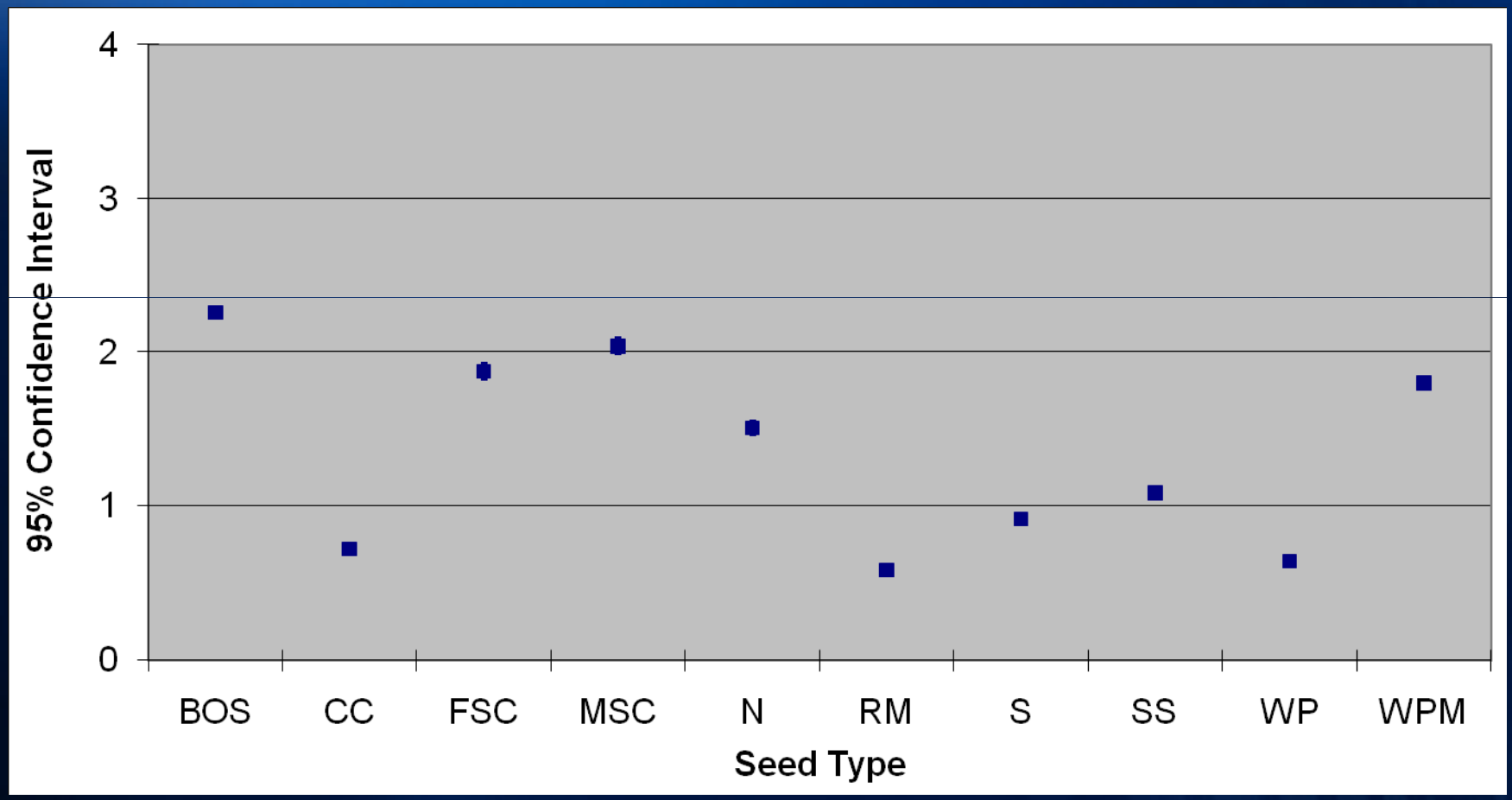


Results – Experimental approach

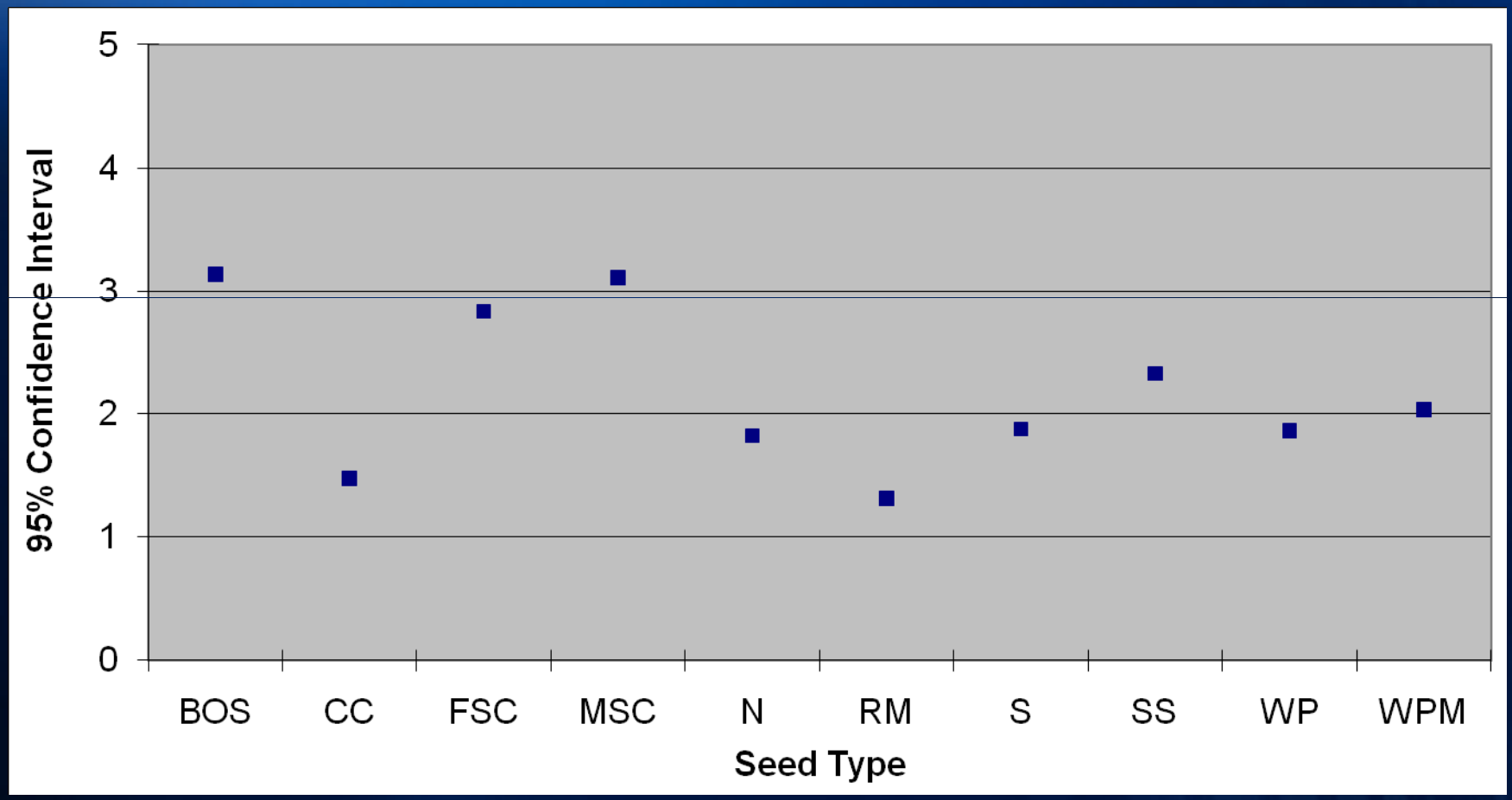
> The 17 most abundant species from most to least number of observations were:

House Sparrow	(n = 305,087)	Common Grackle	(n = 30,311)
House Finch	(n = 212,140)	Dark-eyed Junco	(n = 27,502)
American Goldfinch	(n = 187,892)	Blue Jay	(n = 24,072)
Black-capped Chickadee	(n = 79,570)	Red-winged Blackbird	(n = 21,457)
Mourning Dove	(n = 62,927)	Tufted Titmouse	(n = 20,246)
Northern Cardinal	(n = 54,017)	White-breasted Nuthatch	(n = 17,581)
Brown-headed Cowbird	(n = 40,108)	Carolina Chickadee	(n = 15,106)
Pine Siskin	(n = 30,574)	Chipping Sparrow	(n = 13,302)
Purple Finch	(n = 30,406)		

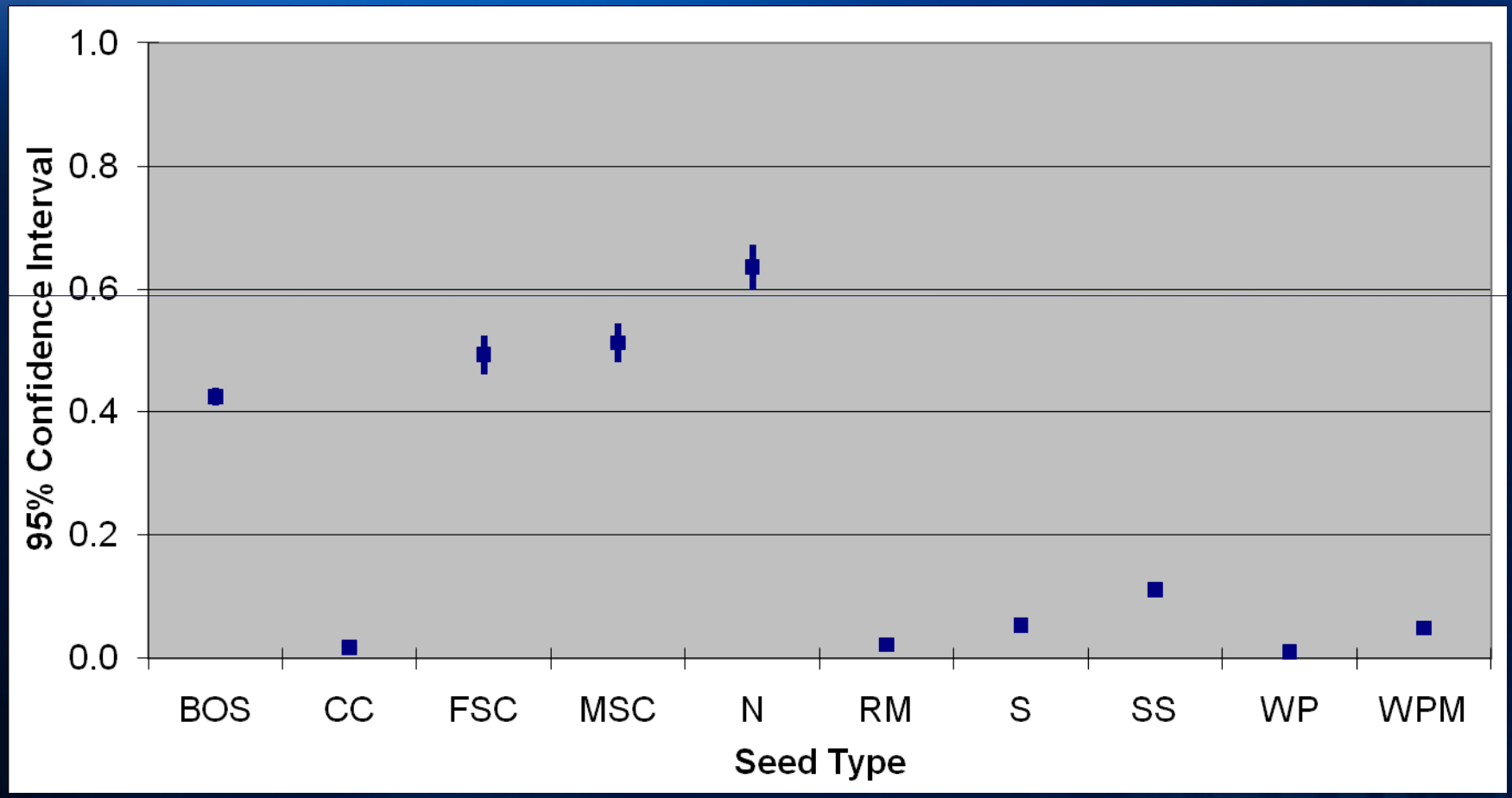
Total number of birds at 10 food types



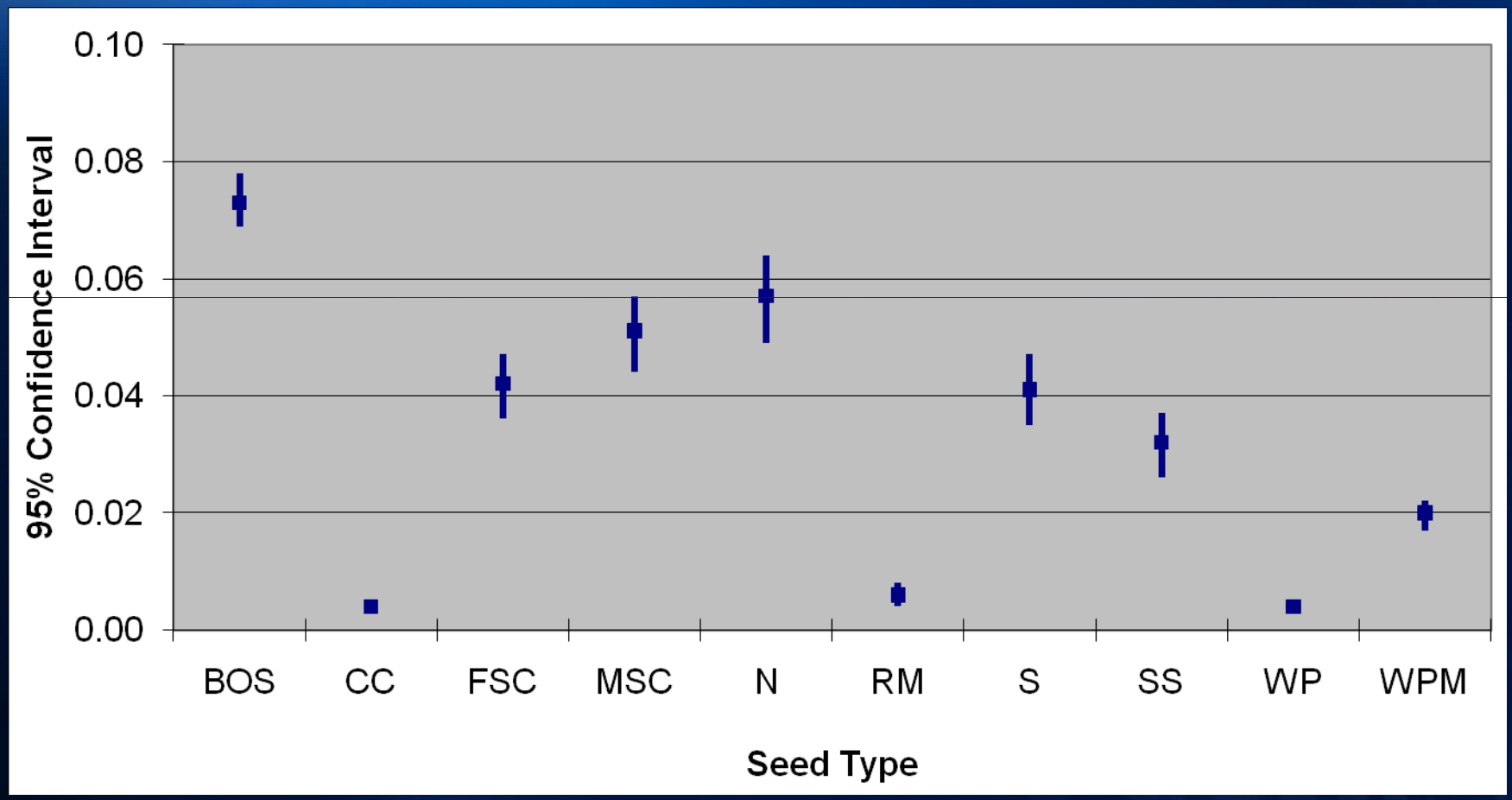
Species richness at 10 food types



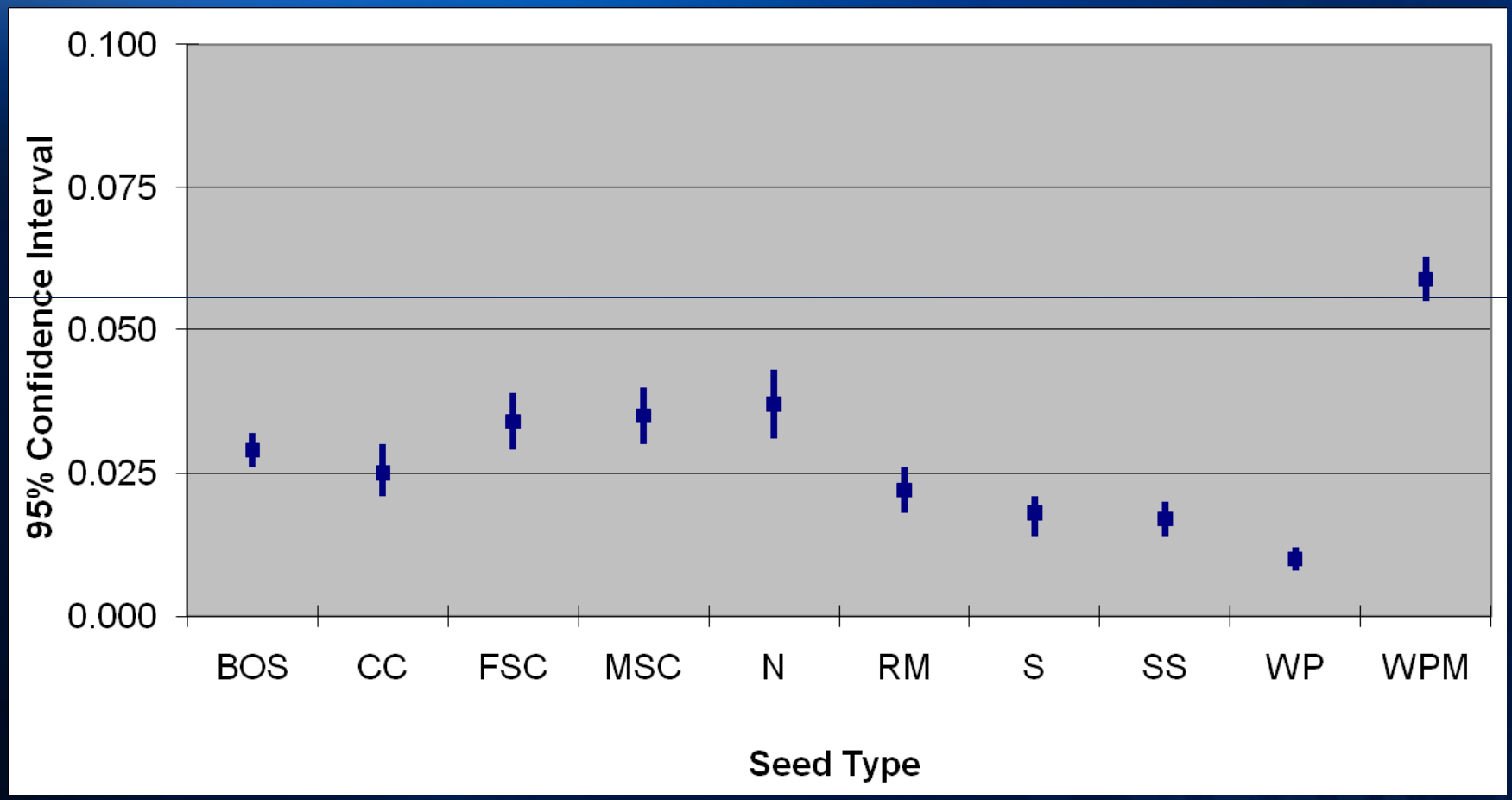
American Goldfinch abundance at 10 food types



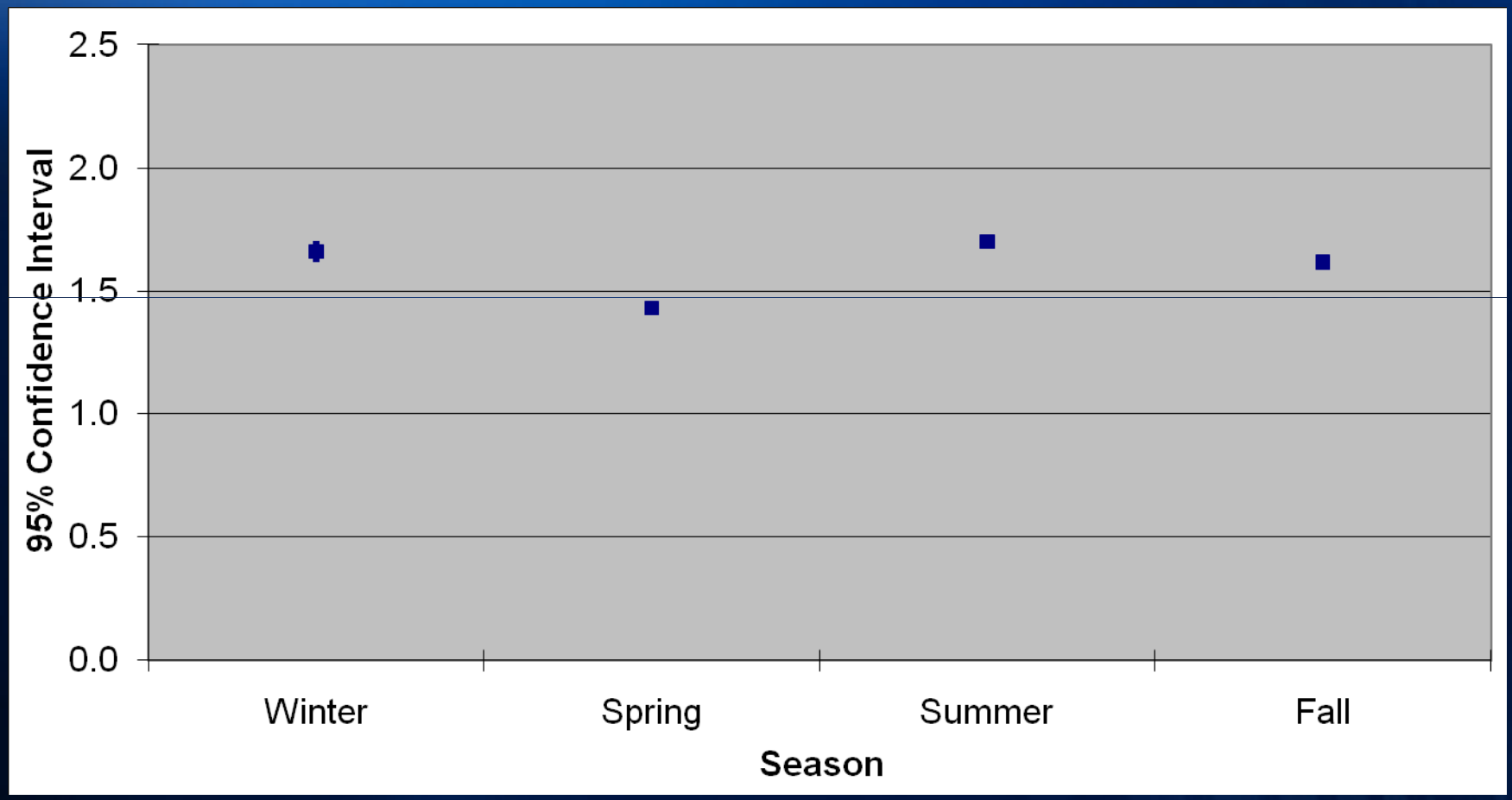
Purple Finch abundance at 10 food types



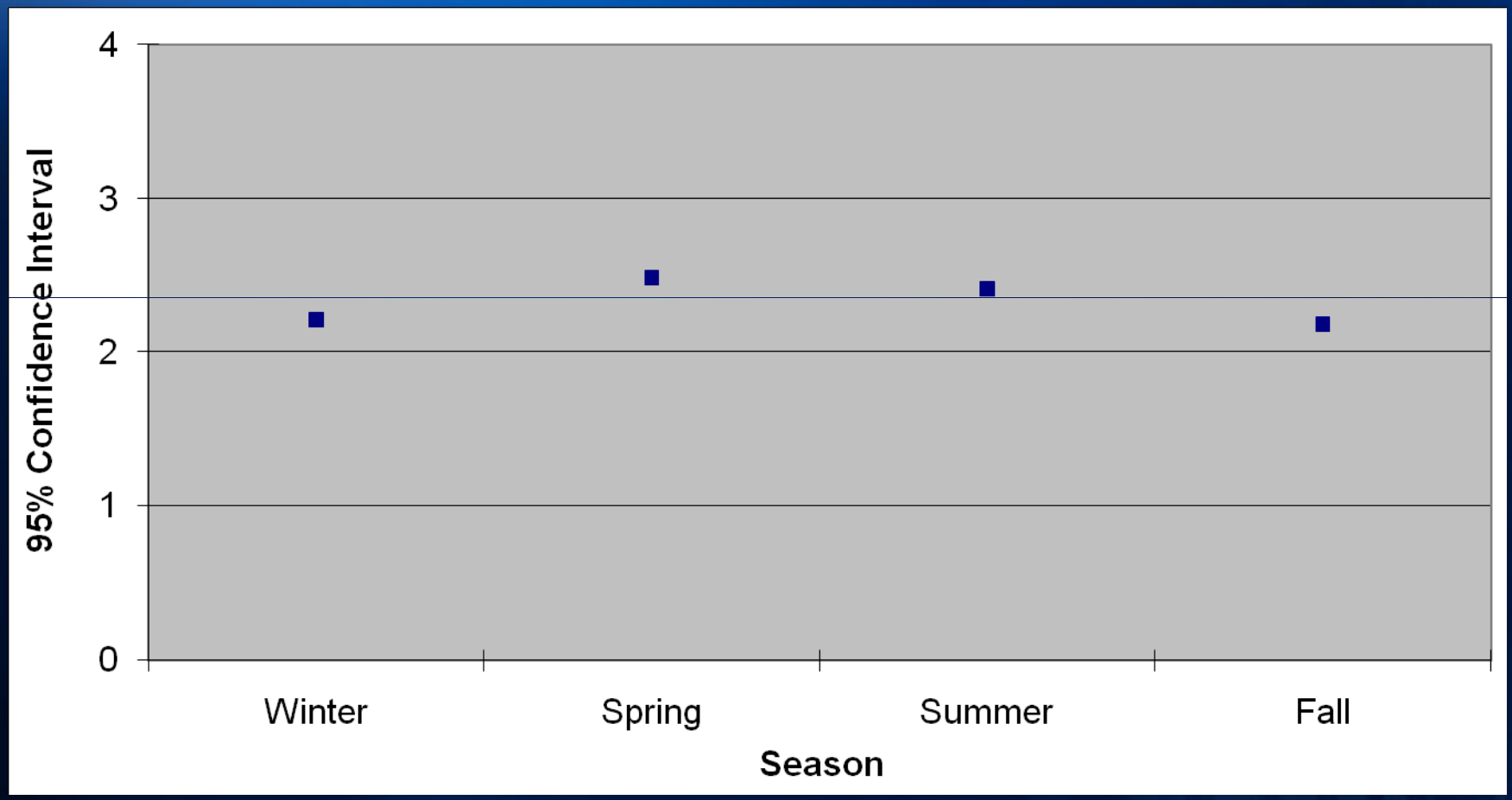
Dark-eyed Junco abundance at 10 food types



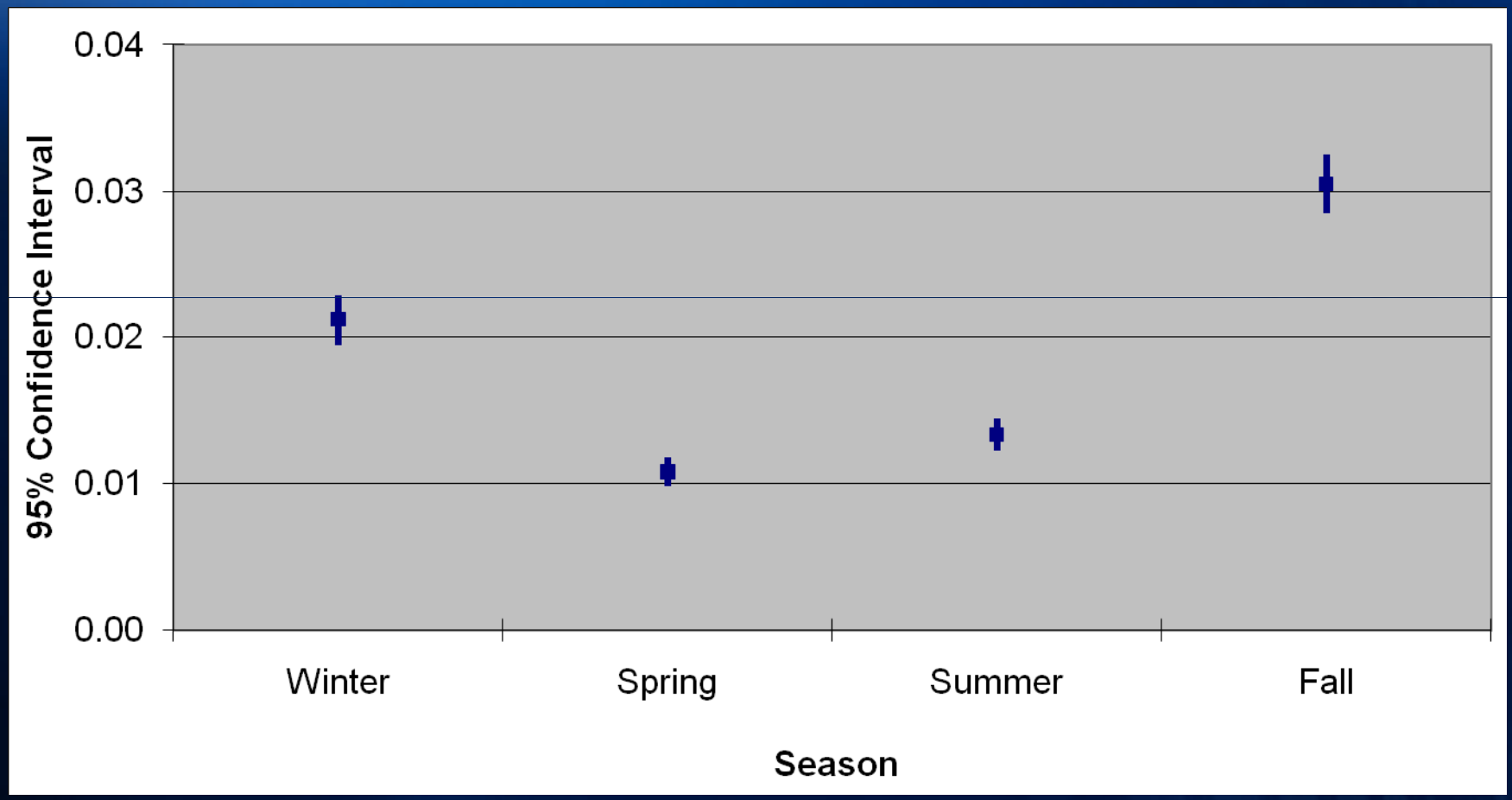
Total number of birds during 4 seasons



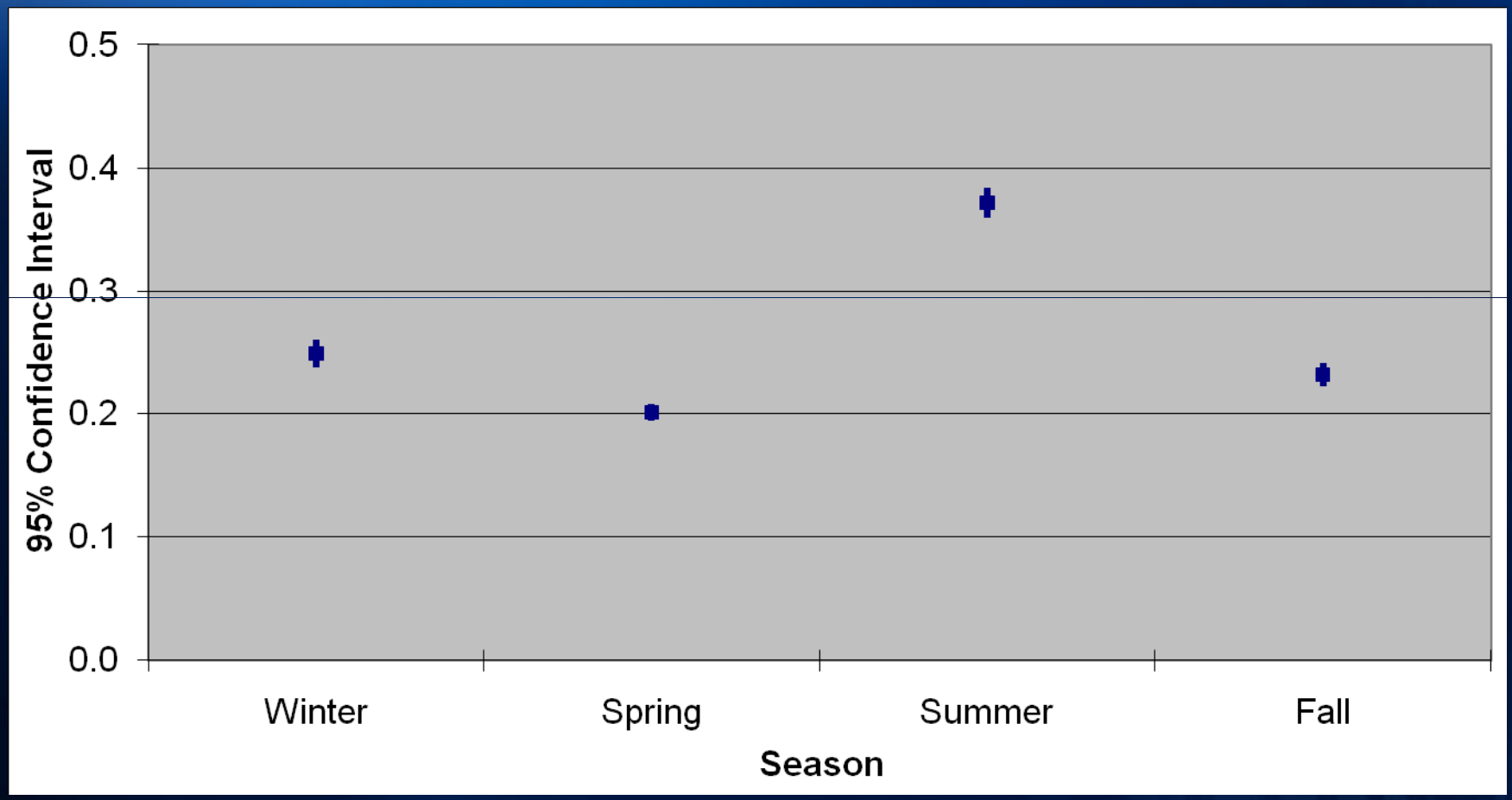
Species richness during 4 seasons



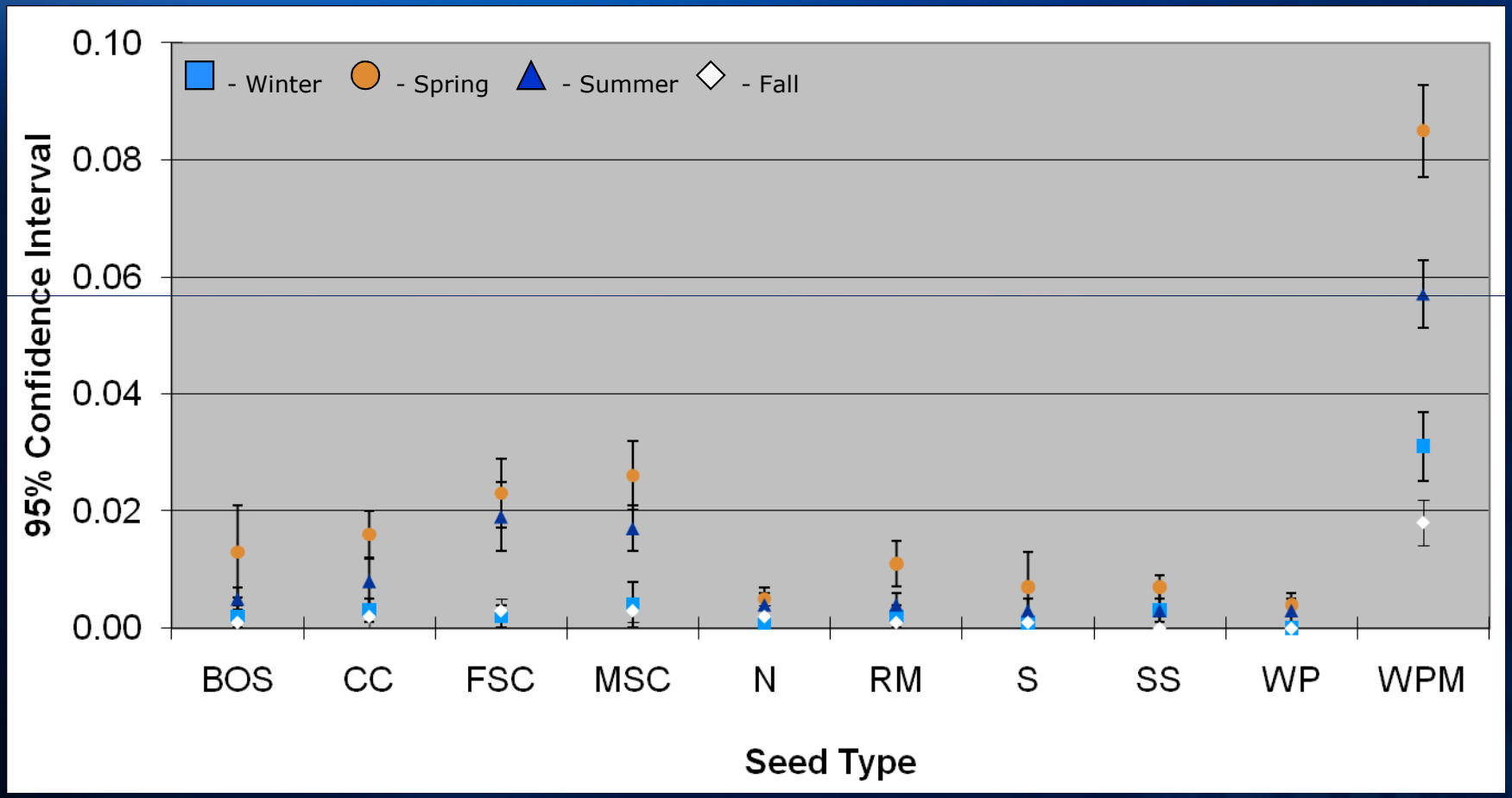
Carolina Chickadee abundance during 4 seasons



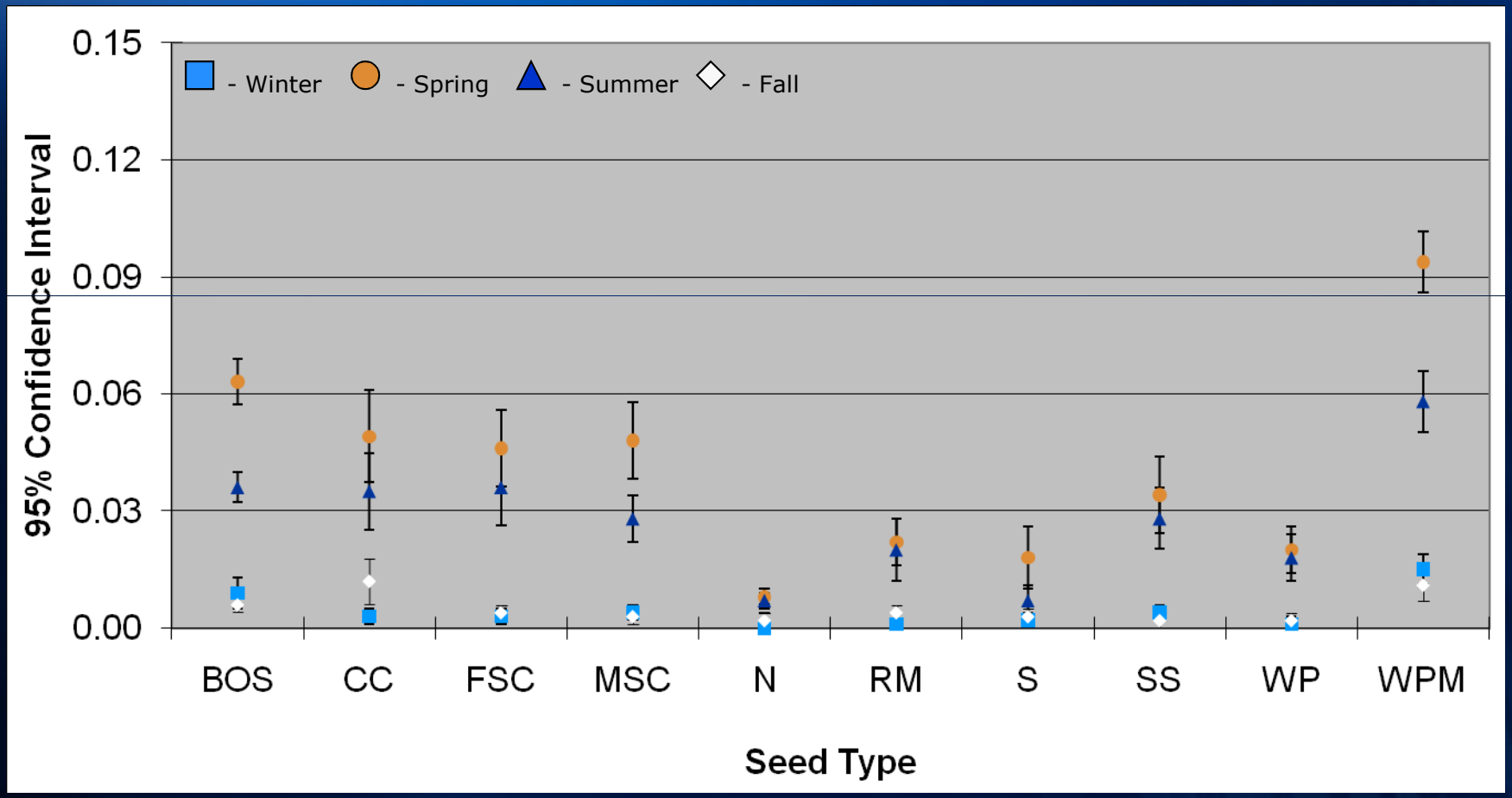
House Finch abundance during 4 seasons



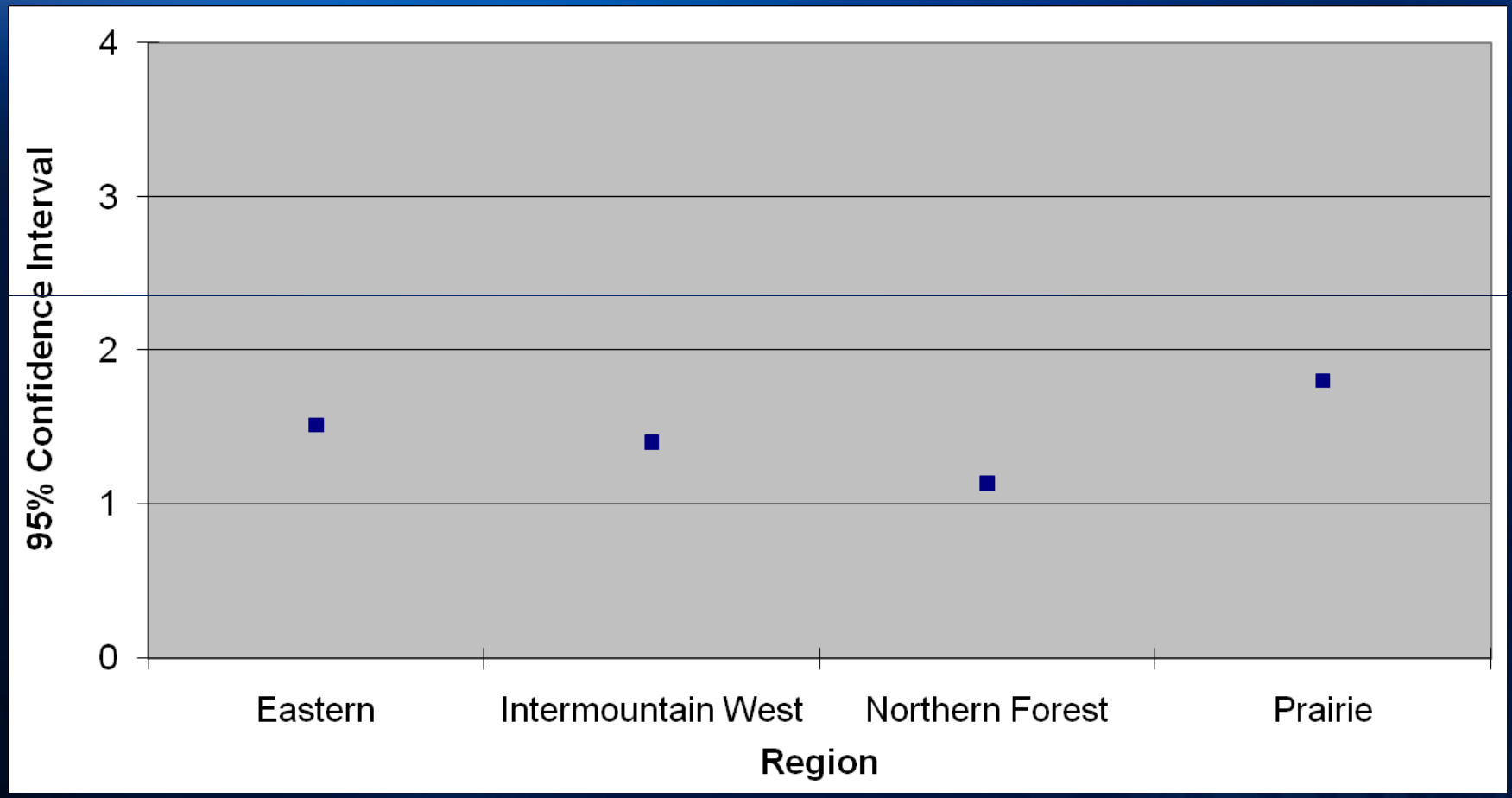
Chipping Sparrow at food and season combinations



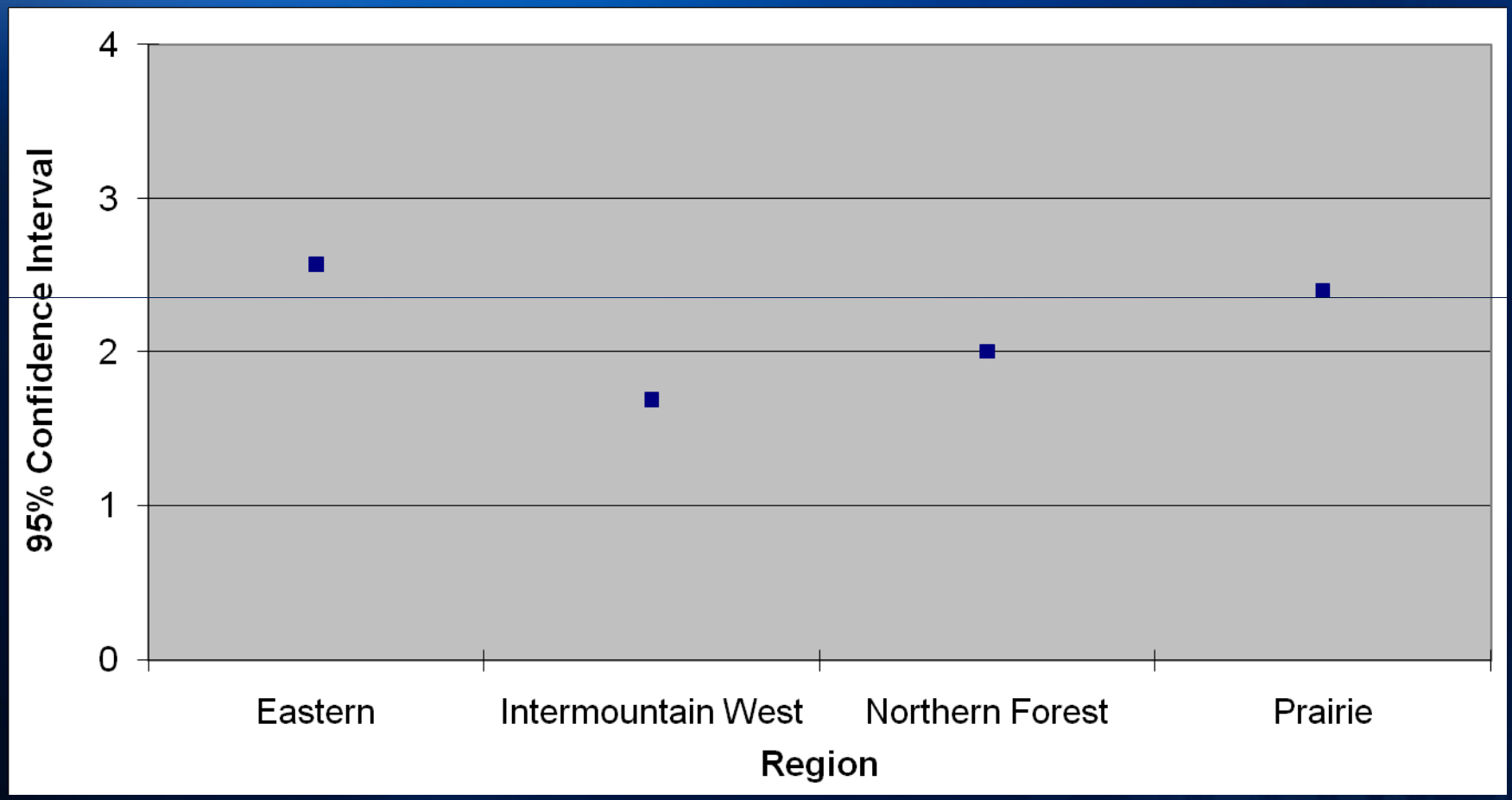
Red-winged Blackbird at food and season combinations



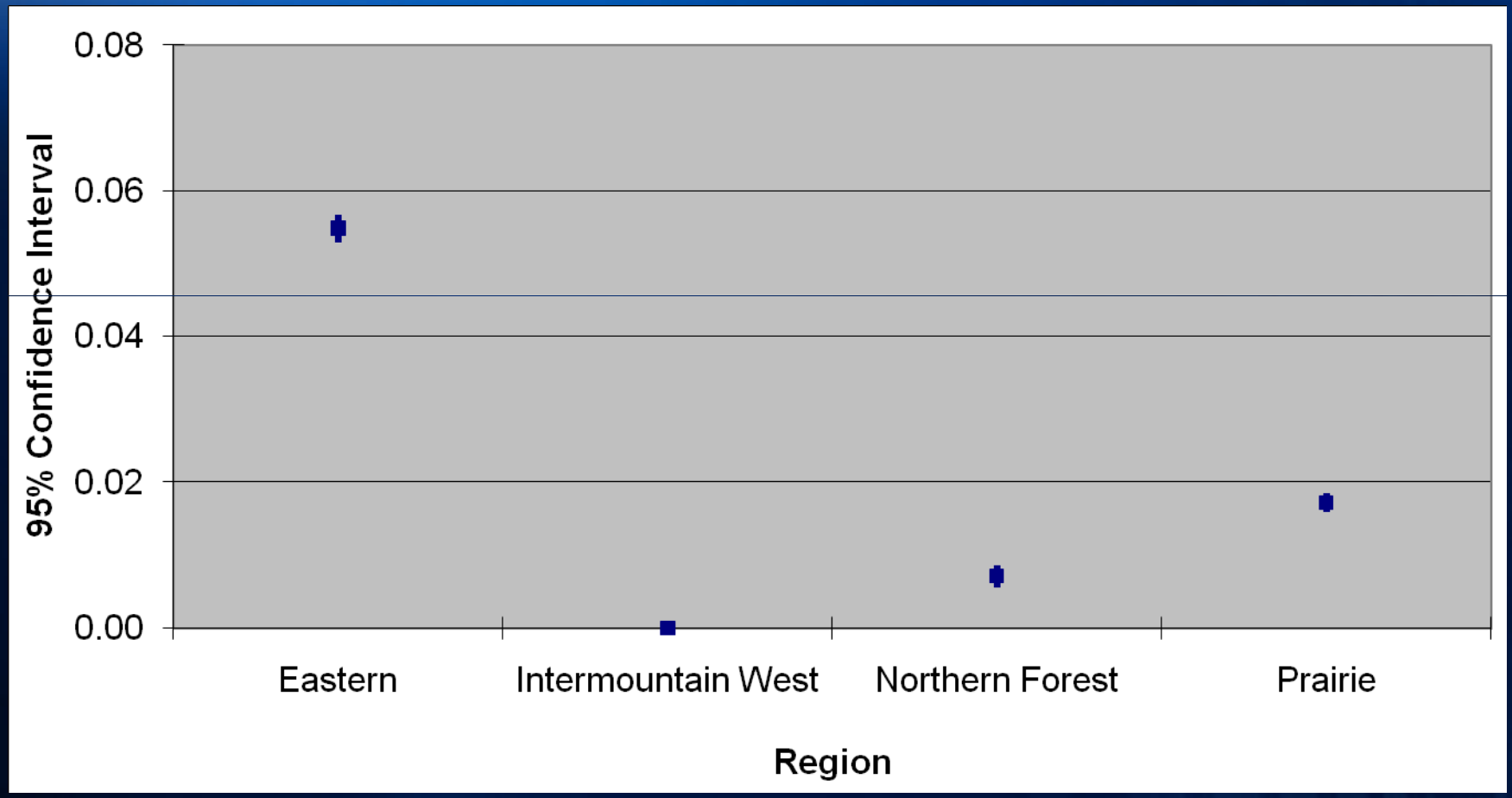
Total number of birds at 4 regions



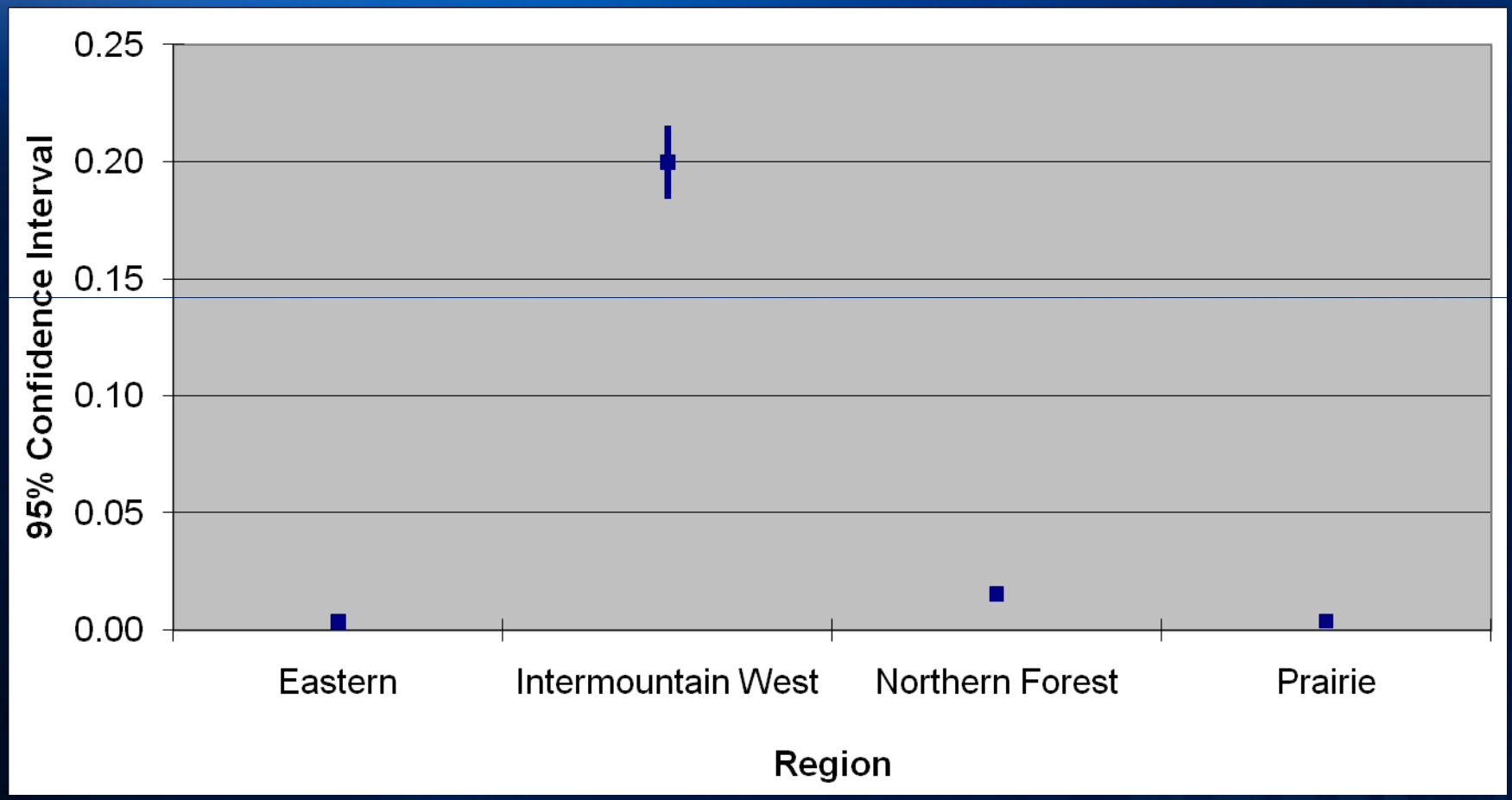
Species richness at 4 regions



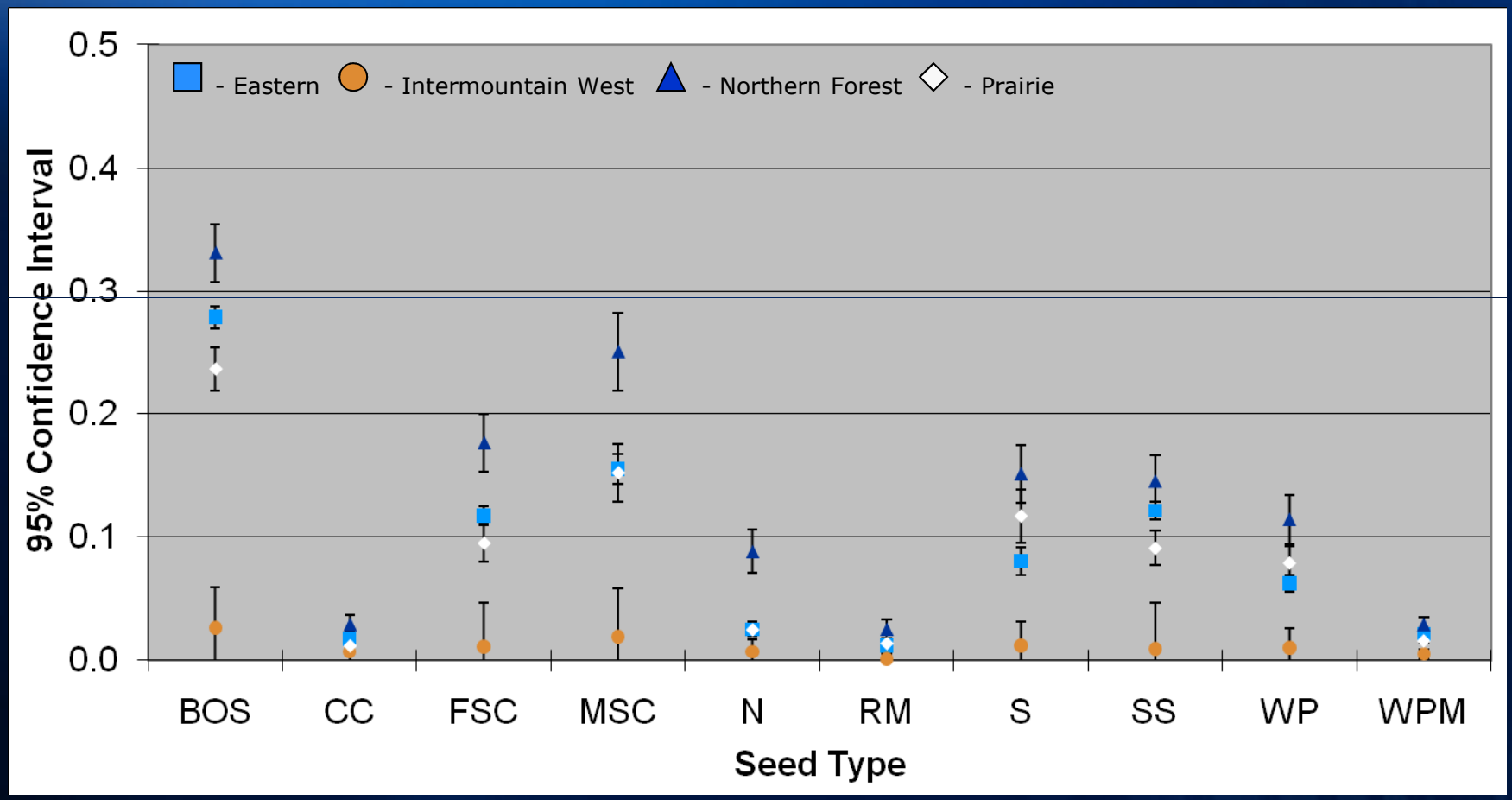
Tufted Titmouse abundance at 4 regions



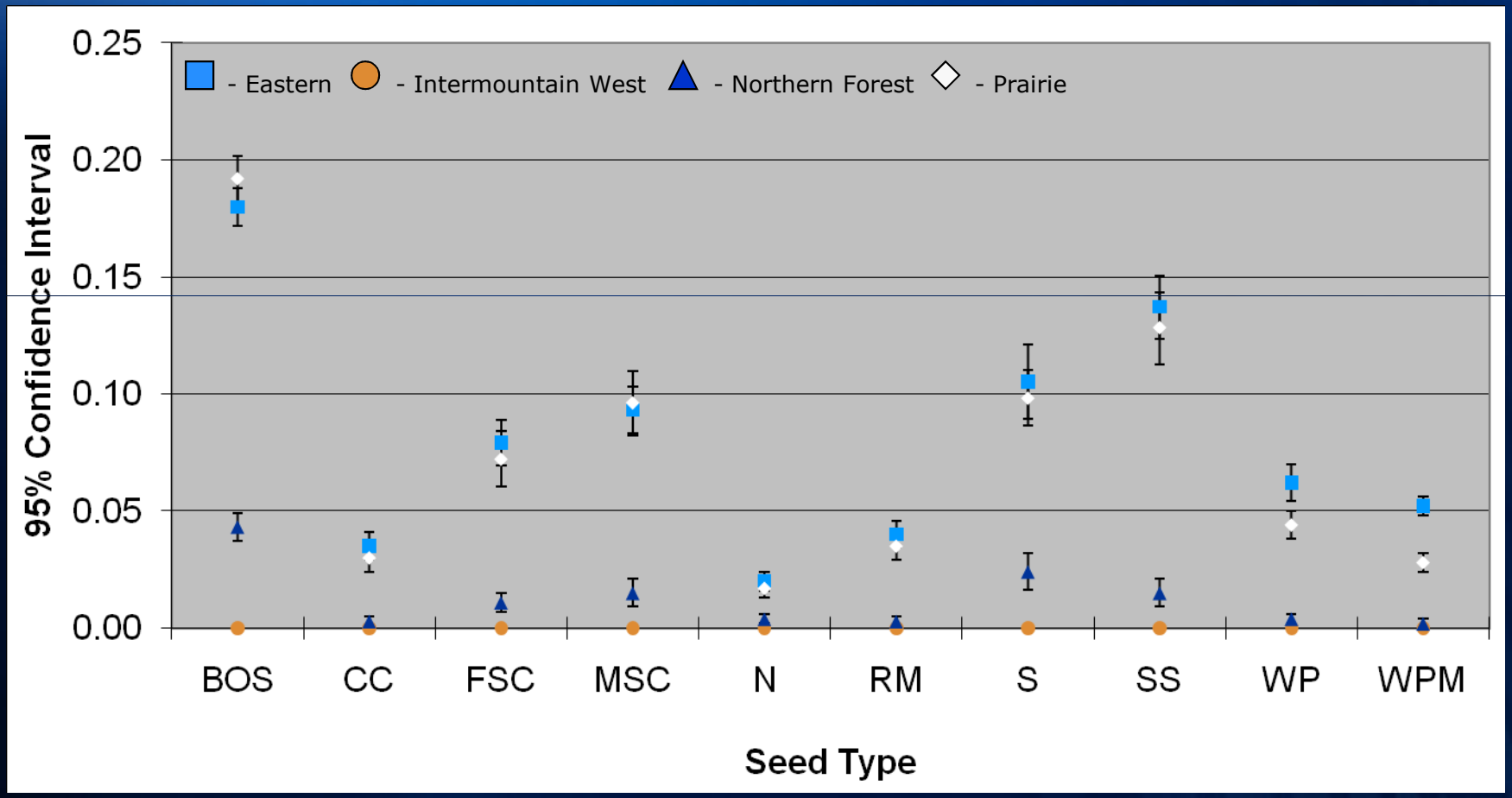
Pine Siskin abundance at 4 regions



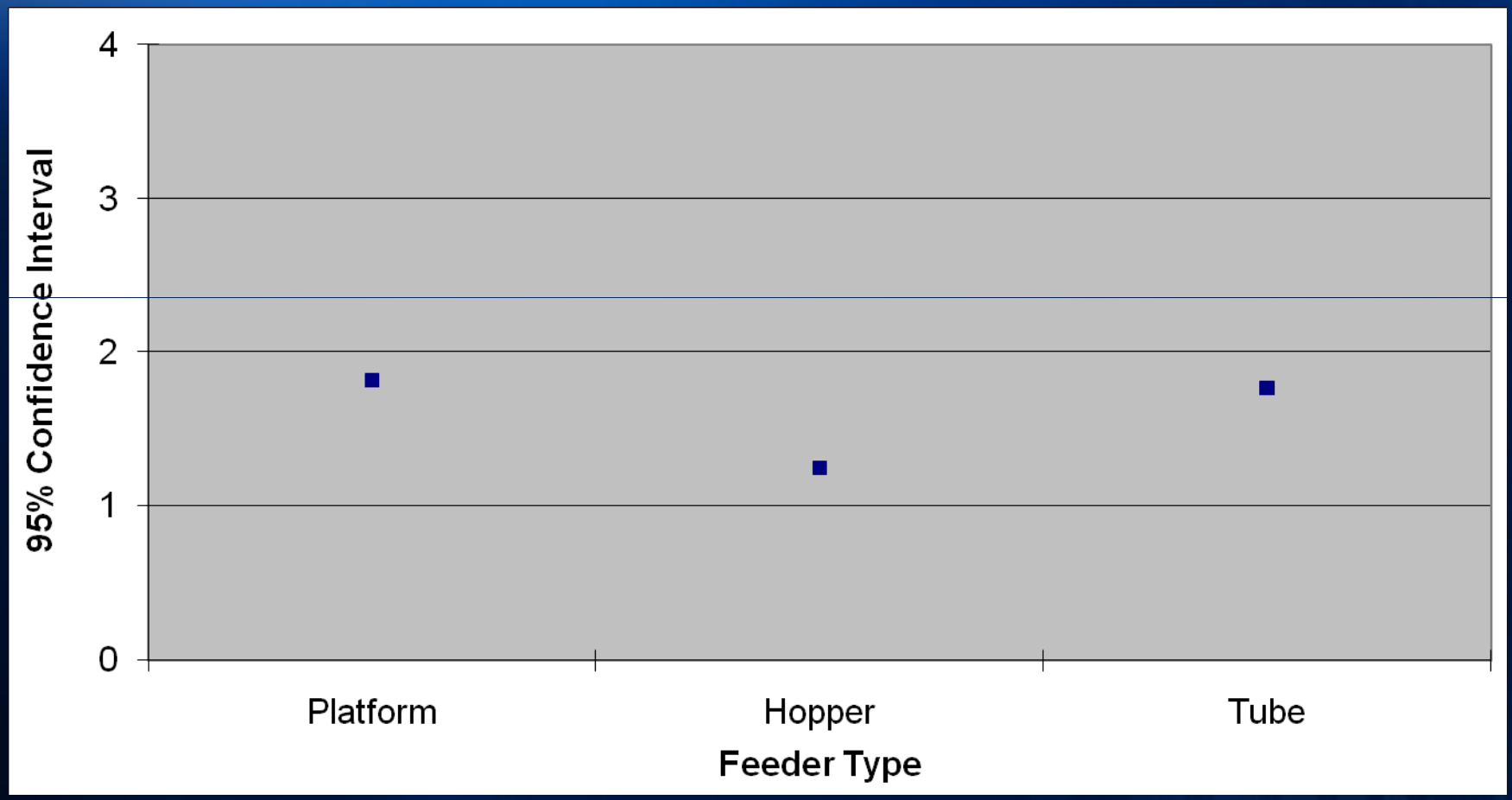
Black-capped Chickadee at food and region combinations



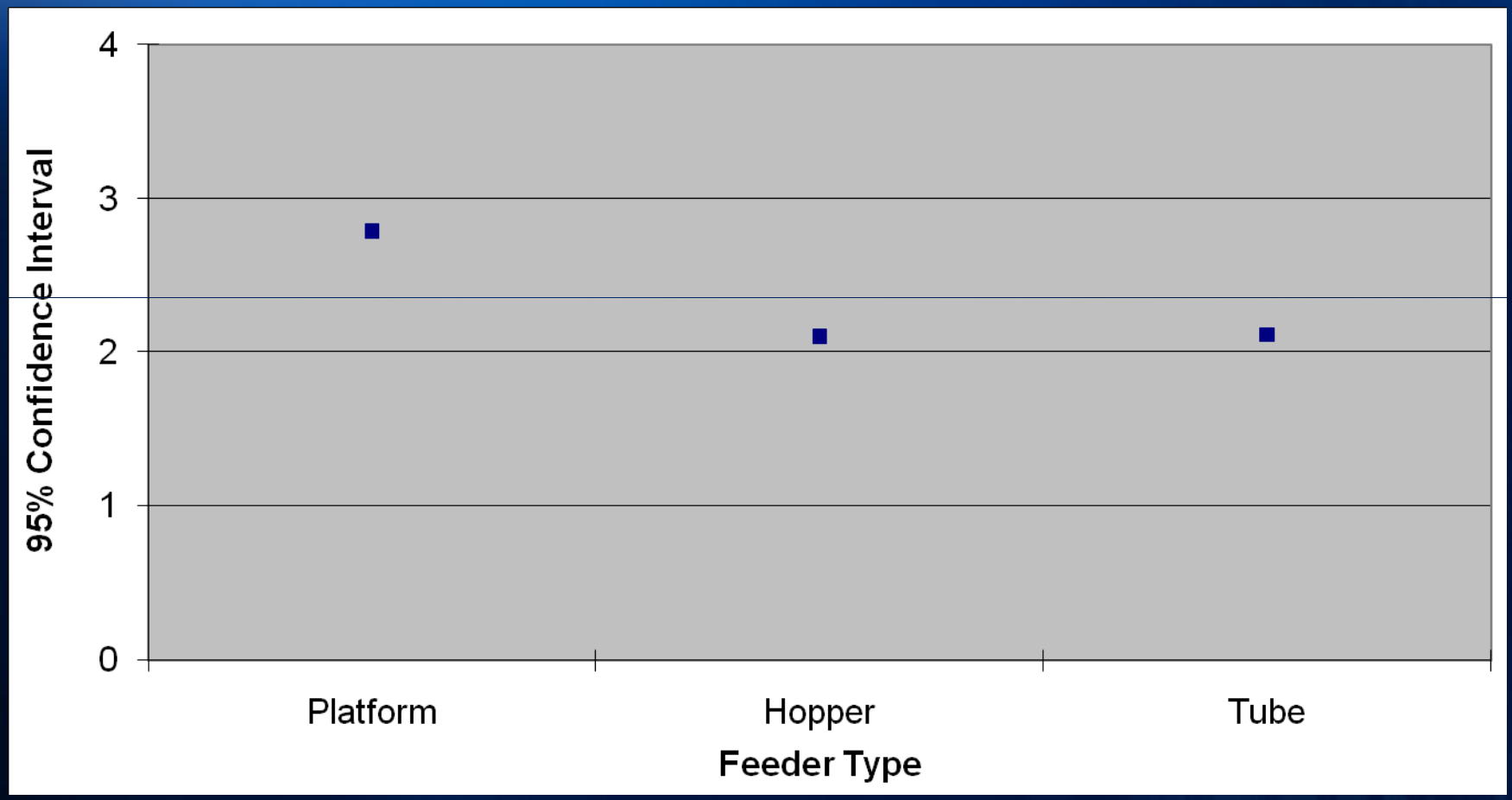
Northern Cardinal at food and region combinations



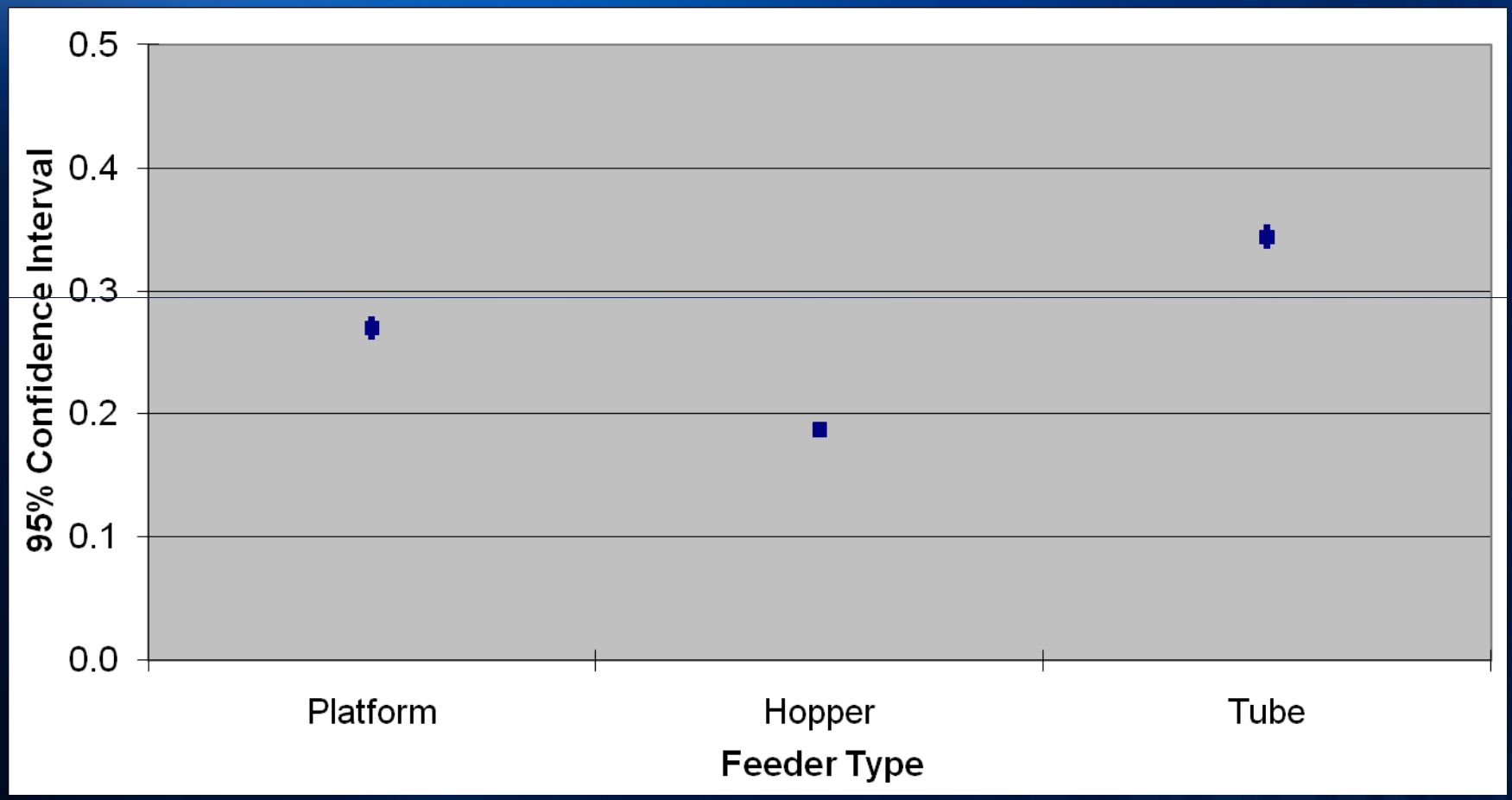
Total number of birds at 3 feeder types



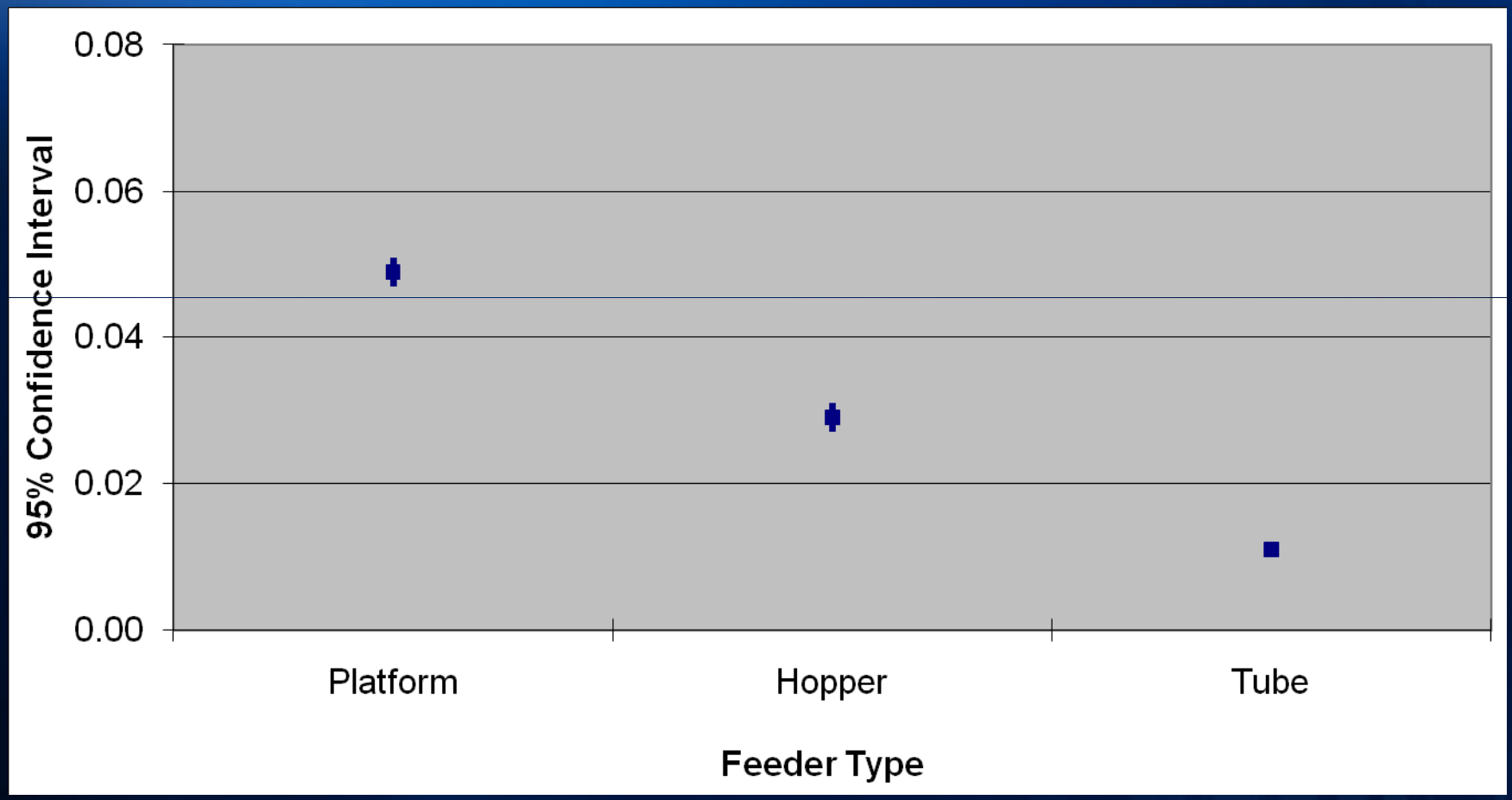
Species richness at 3 feeder types



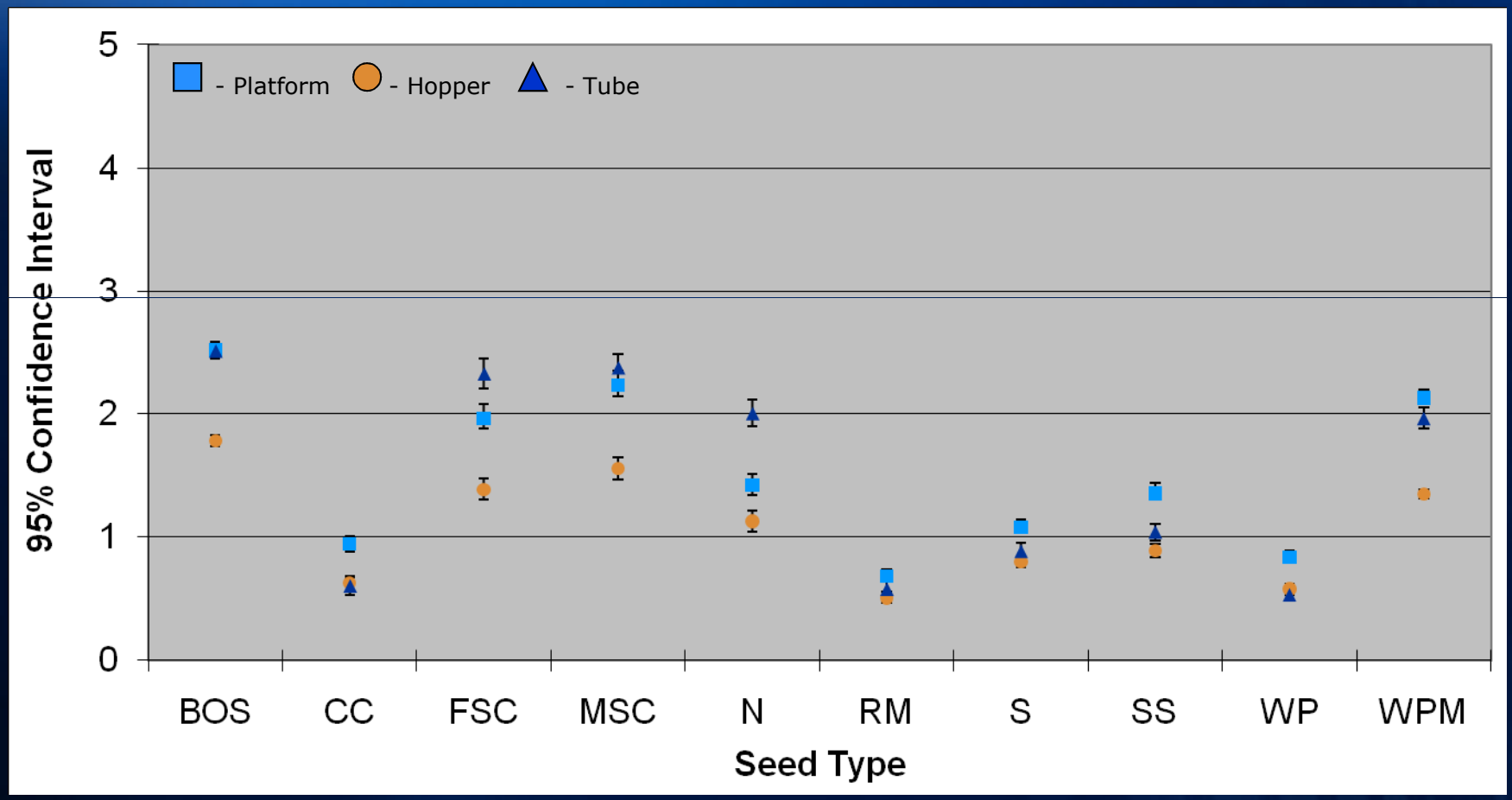
House Finch abundance at 3 feeder types



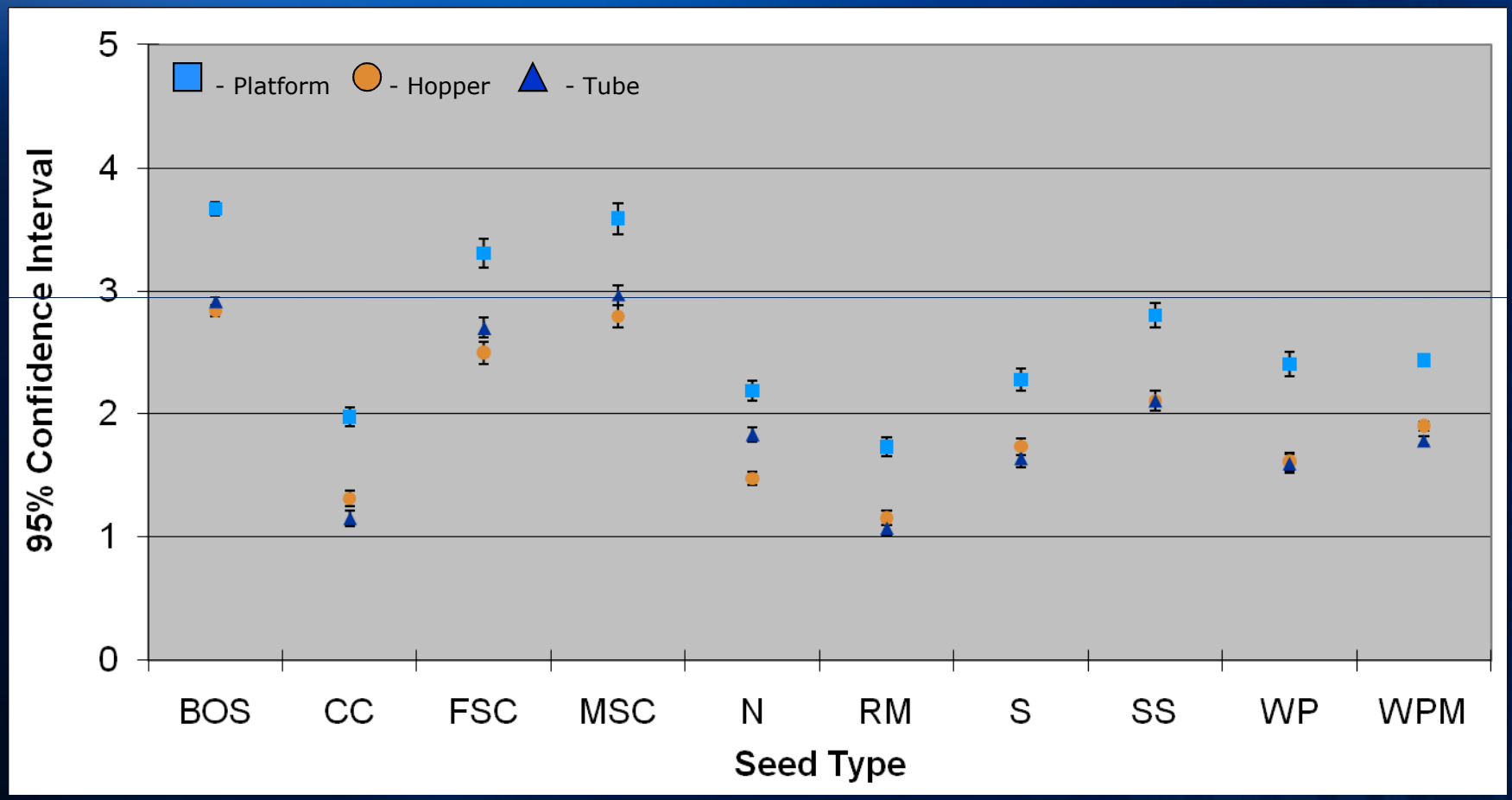
Blue Jay abundance at 3 feeder types



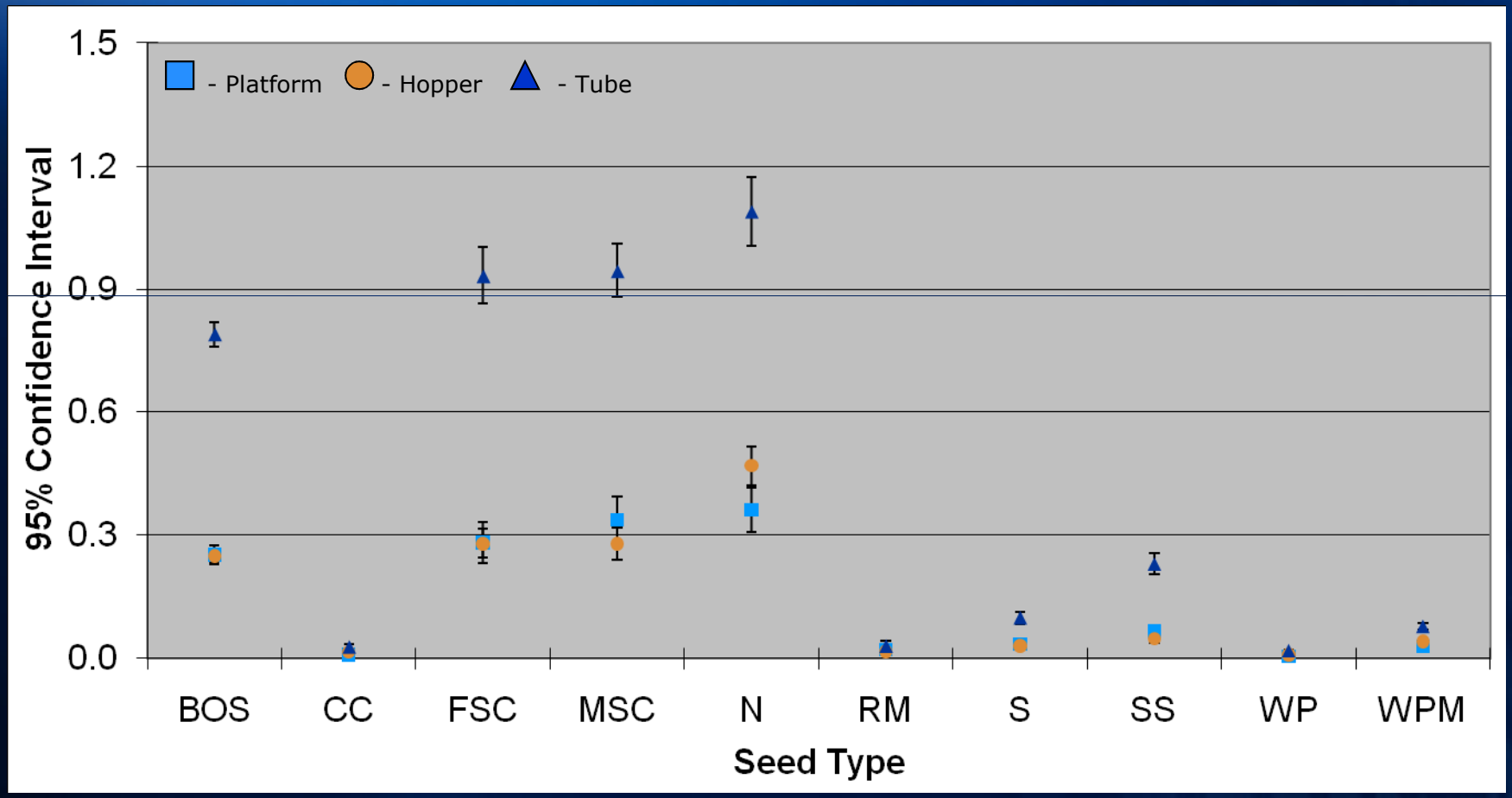
Total number of birds at food and feeder combination



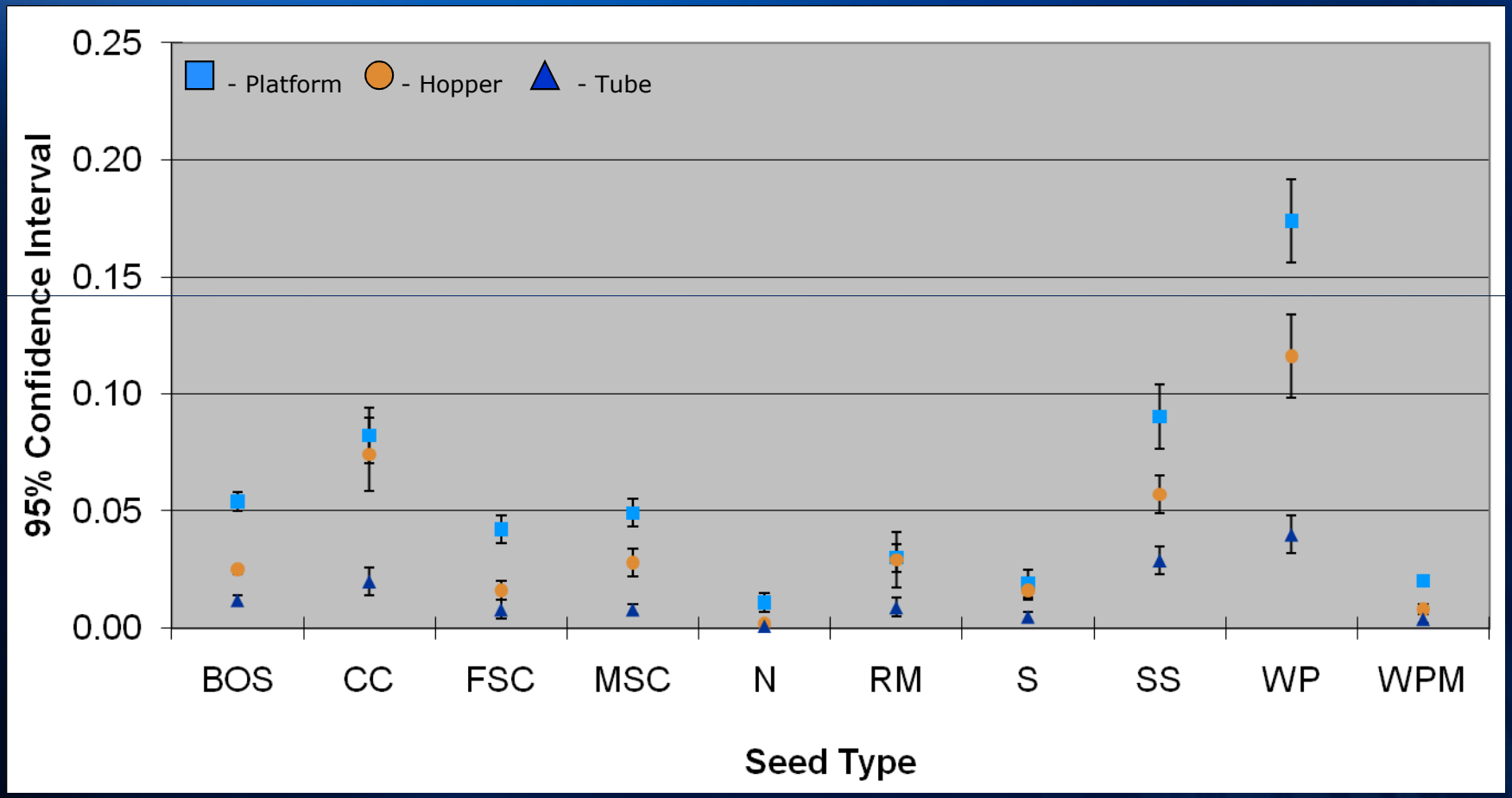
Species richness at food and feeder combinations



American Goldfinch at food and feeder combinations



Blue Jay at food and feeder combinations



Discussion – Experimental approach

- Five of ten seed types commonly used in seed mixes are most attractive to birds: black-oil sunflower, fine and medium sunflower chips, Nyjer®, and white proso millet.

- Two feeder types had the greatest number of bird visits: platform and tube feeders.

- To maximize the number of bird visits, the combination of bird seed and feeder plays a large role for many species.

Outcomes

- Historic scientific study on the seeds and feeders to provide birds with by geographic region and time of the year.

- Study will be the first of many landmark scientific studies to examine wild bird feeding.

PROJECT WILDBIRD Contributors - BENEFACTORS

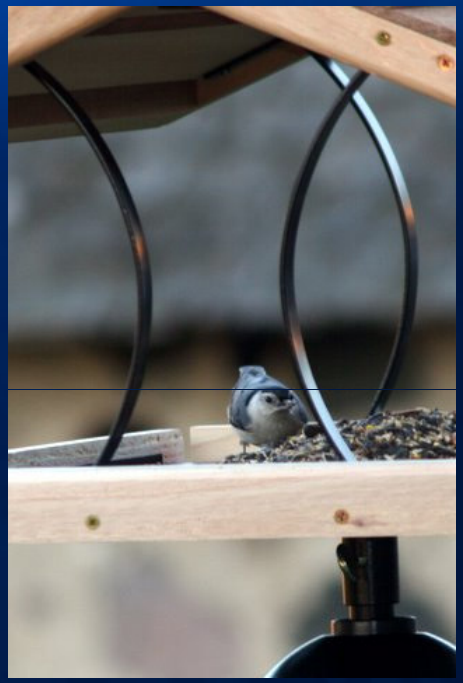
- D&D Commodities
- Wild Bird Centers of America, Inc.

PROJECT WILDBIRD Contributors - PATRONS

- Percevia.com

PROJECT WILDBIRD Contributors - PLATINUM CONTRIBUTORS

- Anderson Seed
- Central Avian & Small Animal (Kaytee)
- Erva Tool & Mfg.
- Kaytee Avian Foundation
- Oilseeds International Ltd.
- Wagner's LLC
- Wild Bird Feeding Industry (WBFI)



PROJECT WILDBIRD Contributors - GOLD CONTRIBUTORS

- Droll Yankees
- Essex Topcrop Sales, Ltd.
- Heath Outdoor Products
- Lebanon Seaboard
- National Sunflower Association
- Red River Commodities
- The Scotts Company

PROJECT WILDBIRD Contributors - SILVER CONTRIBUTORS

- All Seasons Wild Bird Store
- All Star Trading
- Backyard Nature Products
- *Birding Business* Magazine
- Commodity Marketing
- Crest Flavor Company
- ETO Sterilization
- Hawkeye Commodities
- Dick & Carole Hebert
- Imports Sterilization Inc.
- Keystone Grain
- North Pacific Ag Products
- Northern Bag & Box
- Sunbird, Inc.

PROJECT WILDBIRD Contributors - BRONZE CONTRIBUTORS

- Armstrong Milling
- Bridgeway Trading
- Central Distributing
- Cereal Byproducts
- Duncraft International
- Mars UK
- Perry Brothers Seed, Inc.
- Pumpernickel Press
- Wild Bird Seeds & Such
- Wild Birds Unlimited

PROJECT WILDBIRD Contributors - PIONEER CONTRIBUTORS

- All Treat Farms
- Art-Line
- Birdola Products
- Cabin Fever Woodworking
- Cello-Poly
- Central City Marketing & Processing
- Central/Valley Bag
- CHS Sunflower
- Jean Cowden
- Sam Crowe
- Des Moines Truck Brokers
- E. Cohen & Co. CPA's
- Emerson Milling
- Empire Feed & Grain
- F.M. Brown's
- Gro-Well Brands
- Tami Hebert
- Heritage Farms
- High Country Mercantile
- Dr. David Horn
- The Industrial Fumigant Co.
- JB Global
- Knight Seed
- Wayne Lindberg
- MGT Co., Sue Hays
- Beth Mohan
- New Biz Vent, Inc.
- North Central Companies
- North Star Packaging
- Performance Seed
- George & Bette Petrides
- Pine Tree Farms
- Prince Corporation
- Sanimax Marketing Ltd.
- Seed Factory
- Scott Stinar
- Denise Townsend
- Reggie Vanden Bosch
- Vari-Crafts Inc.
- Woodstream Corporation
- Mike & Linda Wulf
- Bob Yoder
- Tom Young

PROJECT WILDBIRD Contributors - WBFI Research Foundation Trustees

- The founding trustees for the WBFI Research Foundation included:
  - Craig Brummell, Essex Topcrop
  - Danny Dale, Anderson Seed
  - Dick Hebert, D&D Commodities
  - Wayne Lindberg, Sunbird Inc.
  - George Petrides, Sr., Wild Bird Centers of America
- Additional trustees include:
  - Ray David, Longdown Management
  - Rob Mann, All Star Trading
  - Dave Netten, All Seasons Wild Bird Store
  - John C. Robinson, The Scotts Miracle-Gro Company

Questions

Principal Investigator: Dr. David J. Horn

Project Coordinator: Ms. Stacey M. Shonkwiler

For more information

- Principal Investigator, PROJECT WILDBIRD®

Dr. David J. Horn 217-424-6392

Department of Biology dhorn@millikin.edu

Millikin University

1184 W. Main St.

Decatur, IL 62522

- Executive Director, WBFI

Ms. Susan M. Hays 888-839-1237

1305 N. Tahoe Trail shays@wbfi.org

Sioux Falls, SD 57110