

2 November 2015

Hana Christoffersen
Grand Rapids Community College
143 Bostwick Ave NE, Grand Rapids, MI 40503
616/307-0597
hanachristoffersen@grcc.edu

Knock Knock, Who's There?

HANA CHRISTOFFERSEN, Grand Rapids Community College, 143 Bostwick Ave NE,
Grand Rapids, MI 40503, USA

PAUL KRIEGER, Grand Rapids Community College, 143 Bostwick Ave NE, Grand Rapids, MI
40503, USA

ABSTRACT

“Knock Knock, Who's There?” is the Gordon Art project at Pierce Cedar Creek Institute for the summer of 2015. Using linoleum prints, this project highlights three species of woodpecker (Red-headed woodpecker, Pileated woodpecker, and Yellow-shafted Northern Flicker) that inhabit the deciduous environment and wetlands at Pierce Cedar Creek Institute in Barry County, Michigan. There are three, central objectives to this project: 1) showcase Pierce Cedar Creek Institute's woodpecker population and natural environment, 2) publicize the importance of scientific illustration in an exceptionally digital age, and 3) advance Pierce Cedar Creek Institute's mission of environmental education by instructing and inspiring developing artists and scientists.

KEY WORDS: Printmaking, Linoleum Prints, Natural Illustration, Pierce Cedar Creek Institute, Pileated Woodpecker, Red-headed Woodpecker, Yellow-shafted Northern Flicker

INTRODUCTION

Playing a vital role in both rural and urban ecosystems, birds are an integral part of our surroundings. They are often seen foraging, calling, interacting with other species, nesting, or flying. Most people identify how a bird looks by general, physical characteristics: feathers, two wings, two feet, and a head with a beak. Consider a better description. How many feathers are on each wing? What are the bird's distinctive colors? What is the shape of the beak? How many toes are on the bird's foot? These questions require specific descriptors, inspiring another question: how well are birds or other organisms thoughtfully observed and portrayed?

Natural (or scientific) illustration aims to illustrate a subject with truth and beauty. There is scientific truth or fact in every detail depicted on the paper, but there is also creativity. These artful, highly informative illustrations teach about an organism's anatomical structure, living environment, and behaviors in a way that is pleasing to our eyes. This summer I exercised scientific illustration and created prints of three species of woodpecker (the Red-headed woodpecker, Yellow-shafted Northern Flicker, and Pileated woodpecker) known to inhabit the deciduous environment, wetlands, and prairie fringe in Michigan.

Woodpeckers are great candidates for this study for several reasons. Fairly common in Michigan during summer, woodpeckers are elegant aviators with strong, visible behaviors. Their methods of drumming, tree-clinging, and foraging are distinctive to their taxonomical order, Piciformes. Their courting and nesting processes, while similar to other species of birds, are compelling behaviors to illustrate. Bright, dappled feathers allow for dynamic color play and linoleum prints that capture the audience's attention.

Recently, woodpeckers have struggled to adapt to sprawling urban infrastructure, shrinking forests, and diminished natural resources. While the populations of Pileated woodpeckers and Northern Flickers have stabilized, the population of Red-headed woodpeckers

continues to suffer a significant decline. It becomes increasingly important to draw attention to this decline and refocus on conservation efforts for the benefit of the woodpeckers, other wildlife, and dwindling habitat.

This study has applications in both biological sciences and visual arts. It affirms the value of hand-crafted artwork and natural illustration, and it proves the value of collaboration between scientific and artistic disciplines. Today, people document their daily routines and surroundings with their cell phone, a “back pocket camera.” It has become the norm for technology to execute tasks traditionally done by a person. Yet, hand-crafted, natural illustration still exists because it captures detail and informs viewers in a way that photography fails to.

“Knock Knock, Who’s There?” offers a window into understanding basic woodpecker behavior, their preferred habitats, and their peculiar identity within the bird population. It explores the effect of linoleum block printing and the value of collaboration between biological sciences and visual arts. Furthermore, this project encourages bird watching, outdoor activity, artistic expression, and facilitates environmental education and awareness.

METHODS

From May 11 to July 31 2015, I researched, observed, and printed woodpeckers that inhabit the forest, prairies, and wetlands of Pierce Cedar Creek Institute in Barry County, Michigan. During the first week of the project, I hiked the trails in the morning from 9 am - 11 am and afternoon from 1 pm - 4:30 pm. I took photographs with a 135 millimeter lens on a DSLR Canon camera, identified woodpecker calls, and sketched 10-second, miniature gestures of the Northern Flicker, Downy, Hairy, Pileated, and Red-bellied woodpeckers with a 2B, 4B, or 6B graphite pencil. I continued to sketch the woodpeckers on property throughout the duration of the project. I spent

the most time on the south end of the property along the Beech Maple Ridge, Tall Grass Prairie, and Old Farm trails.

From June 8 to July 15 I recorded woodpecker sightings at Pierce Cedar Creek Institute with a Garmin GPS unit. Few of the marked woodpecker locations in Figure 2 are based off of auditory indicators. I documented woodpecker sightings for four reasons: 1) If needed, I had the ability to return and observe specific habitats, 2) I incorporated more scientific methods into the Gordon Art project, 3) I gained a familiarity with a GPS unit and GIS data organization, and 4) ultimately, this date contributed to the Institute's awareness of their woodpecker population.

After my own direct observation of Pierce Cedar Creek Institute's woodpeckers, I selected the Red-headed woodpecker as my first subject to print. Using *Peterson's Field Guide to Birds* (2010) as a primary guide, I researched the Red-headed woodpecker's habits, lifestyle, and anatomical structure. Simultaneously, I studied non-copyrighted, source photography online.

A week later, I met with Gail Guth, an esteemed natural illustrator, and my mentor, Paul Krieger, to finalize a sketch of the Red-headed woodpecker. I collaborated with two other natural illustrators over email, Amelia Hansen and Carrie Carlson, to further develop my composition.

When I was not directly observing woodpeckers along the trails, I worked in the Education Building at Pierce Cedar Creek Institute. I began printing the Red-headed woodpecker in the first week of June. There are eight steps to the process of linoleum block printing: 1) Trace the sketch onto a linoleum block using carbon copy paper. 2) Select one of six engraving tools to carve linoleum away from the block. Complete the carving. 3) Mix a black, oil-based Gamblin ink with burnt plate oil to lower ink viscosity. 4) Using a brayer, roll ink onto the linoleum block. 5) Register the block against measured marks on the surface of a desk, and carefully float paper over the inked block. 6) Apply pressure for a minute with a baren, while ink is transferred from

the block to the paper. 7) Peel the paper away from the carving to reveal a final print of the woodpecker. 8) Allow the print to dry, and add color.

Linoleum is resilient enough to “pull” multiple prints from one carving, so I modified the color, pressure, and position of prints to create varying works of art. This experimentation allowed for an equal number of failed prints and successful prints. I used two methods to color the prints: carefully detailing prints with watercolor or carving additional blocks to ink and layer on top of the original print. Odorless Gamsol and paper towels were used to clean the blocks and tools. A string and several paper clips acted as a makeshift drying line for the completed prints.

With each completed woodpecker the process of direct observation, online research, collaboration with natural illustrators, finalizing sketches, and printmaking repeats. In total, I completed a woodpecker every month. The Yellow-shafted Northern Flicker and Pileated Woodpecker were completed in July after the Red-headed Woodpecker.

RESULTS

There are a total of three, finished carvings with additional, smaller carvings to layer onto the final Red-headed and Northern Flicker prints. As of September 26, I had completed sixty-three prints. Six of the prints are framed for display in Pierce Cedar Creek Institute’s Education Building. Of the six donated, there is a monoprint and watercolor print of each carved woodpecker. The remaining prints are sold and distributed from the Institute’s gift shop. In addition, twenty-four smaller, experimental “postcards” are for sale in the gift shop. These linoleum prints ensure that guests are able to take a inexpensive, tangible reminder of the natural world with them.

In addition, I delivered two, successful presentations this summer. I presented to the Rotary Club in Hastings, Michigan and a crowd of interested onlookers during the Institute’s

Family Science Night in June. I watched the public's fascination grow, as I detailed the block printing technique, outlined the importance of scientific illustration, and described Pierce Cedar Creek Institute's unique woodpecker population. Personally, I developed effective communication and presentation in front of large groups of people.

Lastly, the woodpecker sightings documented from June through July resulted in baseline data for Pierce Cedar Creek Institute. It assists with the Institute's awareness of their woodpecker population and distribution of territories on the property.

DISCUSSION

Necessity of Scientific Illustration

Over the years, hand-crafted scientific illustration has lost substantial ground to photography. However, I believe there are benefits to scientific illustration, unmatched by photography. For example, the distinctive vision and handiwork of an artist attracts the audience in the way photography cannot. Scientific illustrations also emphasize relevant information and remove the extraneous details. The background, uneven lighting, or flawed composition of a source photograph may be altered to produce a centrally-focused image. Life cycles, movements, and actions are therefore more significantly captured with illustration. There is potential for linoleum prints of the woodpeckers to create field-guide-worthy illustrations. Visitors and students alike may reference the prints in the Education Building to help identify species of woodpeckers at Pierce Cedar Creek Institute.

Importance of a Science and Art Synthesis

The best collaboration happens in the shared, middle ground between the fields of visual arts and biology. While scientists seek to understand how the world functions and operates from a macroscopic to microscopic level, artists seek to illustrate and convey ideas visually to a greater

audience. When these fields work hand-in-hand, it results in deeper, clearer understanding of the natural, scientific mechanisms that surround each of us. Natural illustrators illustrate and visually clarify biological structures, and non-scientists and non-artists are able to appreciate and learn from these illustrations.

Fundamentally, both scientists and artists experience design challenges. Scientists gather data, develop theories, and create hypotheses. They seek to build a better design, determine a more cost-efficient method, or discover a “greener” solution. Similarly, artists approach their sketchbook, paper, or canvas with a mission to convey their ideas and concepts to a greater audience. These two disciplines would not exist without the other. They depend on each other, they challenge each other, and they deepen the opposite field’s understanding.

Consider this application of the synthesis between art and science: there would not be scientific theory or structure without imagination. Using their imagination and creativity, scientists are responsible for thinking outside of the box. All scientific experiments require creativity, and scientific models are created through this deliberate experimentation. Likewise, with a critical hand artists use their imagination to create thought-provoking, progressive works of art. These patterns are shared between both disciplines.

Furthermore, illustration is often underrated in research. Accurate observation and illustration of a subject is a powerful means of studying a subject’s structure and mechanism. Even if they are hastily drawn, sketches of plants or organisms in a lab notebook are great examples of the usefulness of illustration during research.

Easily overlooked, art, creativity, and science are more intertwined than a first glance suggests. It is critical that kids grow up with an understanding that art and science are not separate categories. These fields are connected.

Success of the project

The environment plays a fundamental role in each of our lives, and I sought to illustrate and incorporate natural organisms and various habitats into my linocuts this summer. I aimed to inspire each viewer to appreciate the environment's importance. Both my sketches and final linoleum prints use the environment as a visual tool to capture the audience's attention. Central to each the composition, the woodpecker illustrations are also compelling and command the viewer's attention.

Having the opportunity to devote substantial time to a project based in science and art greatly improved my ability to sketch quickly, compose an illustration, and create artwork from an idea. I consider design questions with more critical thought, patience, and a better eye. There is visible improvement to my quick gestures, ability to problem solve, and ability to collaborate with other professionals. I have certainly become a more developed, accomplished artist.

Inevitably, there were some roadblocks during this project. My 135 millimeter camera lens did not capture the precise amount of detail needed, so I relied heavily on stock photography and field guide illustrations to guide the detail in my illustrations. Also, I sighted woodpeckers frequently along dim, forested trails, where it was especially difficult to photograph the birds. Periodically, the woodpeckers would not make appearances. On these occasions I redirected my attention to a different part of this project. Formidable weather and heavy foot traffic along the trails likely contributed to the woodpeckers' absence.

Due to time constraints, I was not able to produce more than three linoleum carvings. Despite this deviation from my project proposal, I donated an additional print to Pierce Cedar Creek Institute, totaling six, framed prints. Intricate and well-composed, these prints still serve the original aims of the project, so this part of the project is successful, too.

This summer I have increased awareness of woodpeckers and other native wildlife through summer presentations and word of mouth. Elementary-age children, high school students, and guests passing through the Education building at the Institute have stopped to learn about the different species of woodpecker, printmaking craft, and importance of natural illustration. Despite this age old method and challenge of reversed visual thinking, people of all ages were excited to try their hands at block printing.

In addition, the six, framed prints are designed to stand the test of time, inspiring people of all ages to pay attention to the diverse wildlife in Michigan. I hope the prints will spark discussions and imaginations for years to come. Likewise, the prints distributed from the gift shop will encourage wildlife and environmental conservation for years ahead. This art speaks for itself.

For the most part, it was not an issue to show the block printing method to visitors. However, there were times where demonstrating the block printing method to a large group of people became an issue. There were not enough boundaries in place to ensure that small kids would not get covered in permanent ink, guests would not walk off with printmaking tools, or passersby would not take unsigned prints for themselves.

Although this project sufficiently proves the importance of natural illustration, I did not achieve as fine a level of detail as I had hoped to achieve with my final linoleum carvings. Natural illustration often requires detailed work, and linoleum carvings tend toward less detailed shapes. These woodpecker prints are detailed to a point, but they could use greater detail and realism. Regardless, linoleum prints add a different, interesting dimension to this study, and they are a valuable addition to this project.

ACKNOWLEDGEMENTS

Thank you to S. Syswerda for her thoughtful advice and project support, A. Smith for his guidance with the GPS unit and assistance with GIS data organization, and P. Krieger for his mentorship, collaboration, and encouragement during this summer. Thank you to G. Guth, A. Hansen, and C. Carlson for their constructive criticisms and insights into the artistic process and field of natural illustration. Most importantly, thank you to G. and B. Gordon for funding the 2015 Gordon Art Fellowship at Pierce Cedar Creek Institute.

REFERENCES

2010. Peterson's Field Guide to Birds. White LA, editor. 6th ed. New York (NY): Houghton Mifflin Harcourt Publishing Company.

APPENDICES

Figures

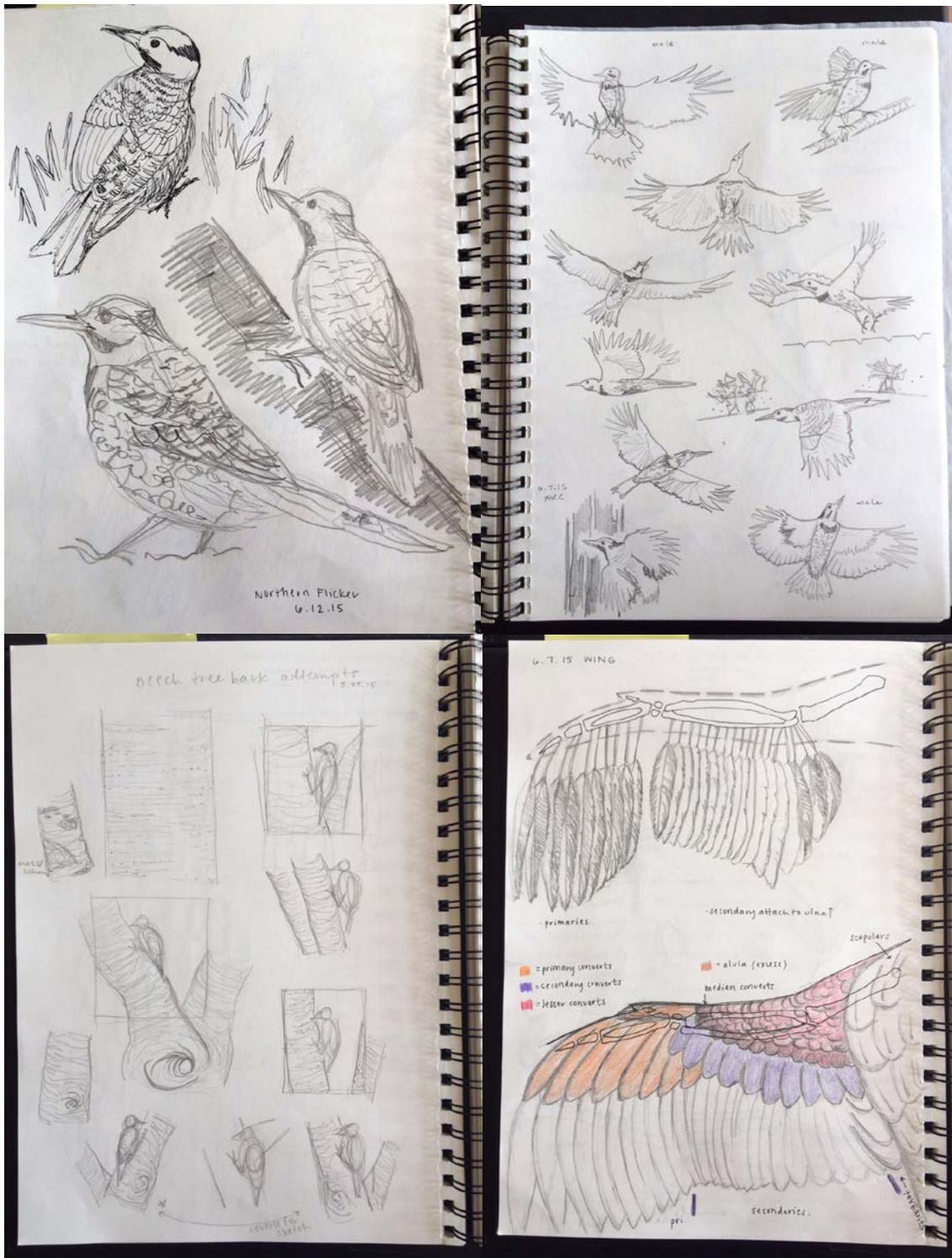


Figure 1. Ranging from May 25 to June 12 2015, these are four example sketchbook pages out of a complete, seventy page sketchbook. Sketches are based on direct observation of woodpeckers this summer at Pierce Cedar Creek Institute, Barry County, Michigan USA.

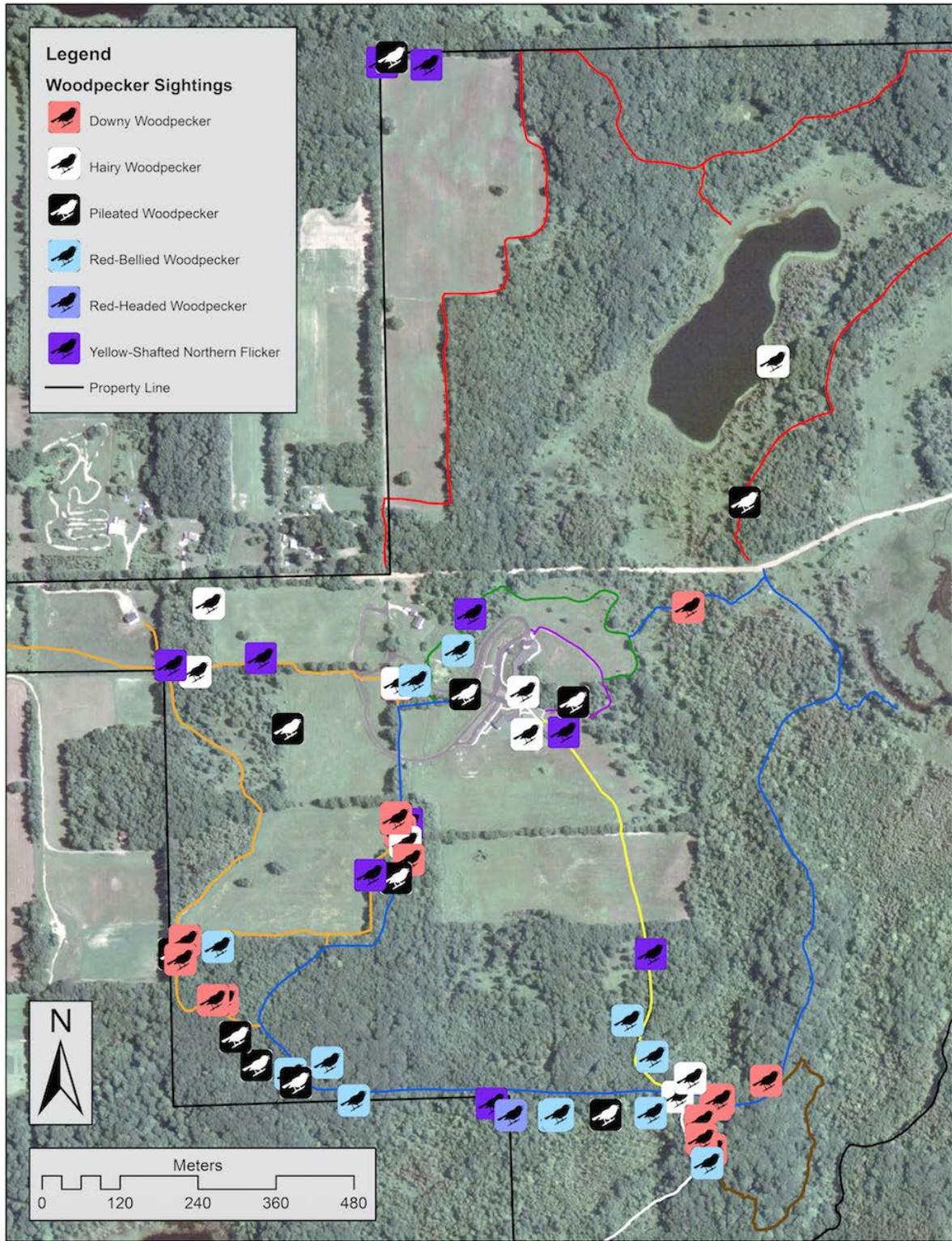


Figure 2. This graphic depicts woodpecker sightings along the trails at Pierce Cedar Creek Institute, Barry County, Michigan USA, from 8 June to 15 July 2015. Over sixty sightings are shown on the map above.



Figure 3. This is the original, carved linoleum block used to produce the Red-headed woodpecker prints. Completed on 31 May 2015 at at Pierce Cedar Creek Institute, Barry County, Michigan USA.



Figure 4. These are photographs of a monoprint (left) and print in oil colors (right) of the Red-headed woodpecker. Red-headed woodpecker prints were completed in June 2015 at Pierce Cedar Creek Institute, Barry County, Michigan USA.



Figure 5. These are photographs of a monoprint (left) and watercolor print (right) of the Yellow-shafted Northern Flicker. Northern Flicker prints were completed in July 2015 at Pierce Cedar Creek Institute, Barry County, Michigan USA.



Figure 6. These are photographs of a monoprint (left) and watercolor print (right) of the Pileated woodpecker. Pileated woodpecker prints were completed in July 2015 at Pierce Cedar Creek Institute, Barry County, Michigan USA.