

Wide-format Inkjet Prints



are helpful to Ecology
& Botanical Research



▲ Here are the prints arriving via FedEx to the office of FLAAR-REPORTS in Guatemala City, Central America.

The team welcoming the prints include the Office Manager Flor de Maria at the left, Dr Nicholas in the middle, the Q'eqchi' Mayan team of Gaby, daughter Shaila and Senaida, and the Pokomchi Mayan assistant with daughter Daenerys. These kids help teach us how to prepare material to teach them about their heritage and teach them about local flora and fauna.

Large-format prints can help research projects

Our team has over 20 years experience with wide-format inkjet printers. We work with ink companies, printer companies, and the companies who make the paper or other materials to print on. The team in the division FLAAR-REPORTS work in China, Taiwan, Korea, India, Europe, Canada, USA, and Latin America. For many years the FLAAR office was on several

university campuses (with Dr Nicholas as Visiting Research Professor in digital and printing technology at Bowling Green State University (BGSU in Ohio and at Universidad Francisco Marroquin (Guatemala City). The first FLAAR-REPORTS were developed while Dr Nicholas was a visiting research professor in scanning and digital imaging for a six month Japanese government fellowship in the late 1990's at Japan's National Museum of Ethnology, Osaka.



This experience with printing, inks, all the software used to prepare and process the prints, plus workflow equipment: cutters, laminators, etc. can be helpful to research projects and as educational material in botany, zoology, and ecology, as we will mention here. It is rare that a botanical garden, a zoology institute, ecologists and the many capable university scientists around the world have wide-format inkjet printer technology to assist both in their research and in their presenting the resulting data to the world.

A week ago we received a nicely diverse series of UV-curing prints from Mimaki EU demo room. They were printed on the Mimaki UCJV300-160 UV-curing wide-format roll-to-roll printer. Mimaki kindly shipped these prints to Guatemala.

These prints help in many ways:

- While giving a lecture, we like to unroll the prints onto the tables so the audience can see the images in their own hands.
- When we are writing our own research reports, it helps if we have a complete panorama printed on our desk so we can look at every aspect of the biodiverse ecosystem.

And our long range goal is to have exhibits of these prints in the airports of Guatemala so that people will learn about the beauty of Parque Nacional Yaxha Nakum Naranjo (and so more people will want to visit this park to experience the beautiful Neotropical flowers, the happy pollinators, the multiple species of waterbirds along the lakes and rivers of the park).



Banding; Yes or No

You normally see banding where any solid dark color is printed. On the prints from this Mimaki UCJ300-160 UV-curing printer there is no banding whatsoever.

FLAAR has many divisions: the team here are three of the botanists and photographers of FLAAR Mesoamerica who do field work in the remote Neotropical rain forests of Guatemala. We have discovered unexpected savanna ecosystems in a project cooperating with the Parque Nacional Yaxha Nakum Naranjo (Petén, Guatemala). The local park rangers help us reach the remote areas in the park that we discover on aerial photographs.

Then we take panorama photographs to aid in showing the world what these seasonally

inundated savannas look like. These test prints, after we examine their print quality, will be donated to the park and to local associations and donated to local schools. Our goal is to provide inspiration to protect these areas from fires and other inappropriate use. So we are working on learning which plants in each biodiverse ecosystem has species that can assist local people by being preserved (material to allow local people to make things for their homes and to fashion handicrafts to sell to tourists by planting these plants outside the park where they can be harvested as renewable resources).

You can see our work on www.maya-ethnobotany.org and www.digital-photography.org.



Colors Achieved

Both the UV-curing printer analysts at FLAAR-REPORTS have many years experience noticing the inadequate colors of UV-curing inks in past decades. Both Melgar and Hellmuth have been flown to UV-curing printer factories to inspect printers in-situ. Hellmuth and Pablo M. Lee have been flown to ink companies (a few months ago to A. T. Inks in India, and earlier in 2019 to the Apollo Ink company in China. Plus to ink companies in Switzerland, USA, Korea, and lots of other countries around the world.

In the first years of UV inks they could not even produce the colors of the logos of either the ink companies or the printer manufacturers. But

every two or three years, one brand after the other got better. At PRINTING United 2019 in Dallas we tested a nice JHF UV-curing printer and a Konica Minolta UV-curing printer. The JHF test prints we will analyze the end of this week; the Konica Minolta print results we analyzed two weeks ago: excellent range of colors (and no banding, no edge splatter).

Obviously every different kind of media results in a slightly different gloss or semi-gloss (or matte). The Mimaki print samples are on blueback paper. To me it is a neutral surface: not too much gloss and not too matte. PVC vinyl has more gloss but has the weave-like pattern of the material which may distract your eye when looking at print quality.



- ▲ *This is a panorama photograph taken from the top of an 8th century Mayan temple-pyramid, looking over the rain forest to see a savanna in the middle. Page 10 shows a close-up of the savanna (taken with an iPhone Xs). But the page 9 panorama is taken with a Nikon D5 with an 800mm prime lens, on a Wimberley gimbal tripod head, on a Gitzo professional tripod. The panorama consists of a dozen photographs stitched together with software.*



- ▲ *To our knowledge no panorama photographs have ever been published on this interesting ecosystem adjacent to Naranjo. It is a savanna that merges into a cibal at one end and merges into a bajo ecosystem at the south. Archaeologist Vilma Fialko told us about this area and mapping expert Horacio Palacios led us on a trail so we could enter these ecosystems to take photos.*

At the bottom you see the grassland savanna. We found tasiste palm and calabash trees; both are savanna indicators. We estimate that nance fruit trees will also be found (nance is found primarily in savannas and if calabash and tasiste are present it is almost certain that nance will be found in the future.

On the following two pages are more panoramas of a wide range of biodiverse ecosystems within Parque Nacional Yaxha, Nakum, Naranjo, in Guatemala, just west of the Peten-Belize border.



▲ We wish to thank Lic. Leonel Ziese -Coordinador Administrativo of the Parque Nacional Yaxha-Nakum-Naranjo for his encouragement, organization of cooperation among the entities, access to the park teams, and the time all this takes.

We also wish to thank Ingeniero. Mario Vasquez, -Jefe del Parque por CONAP, for his understanding of our goals and assistance in facilitating us to achieve these goals of this Project, especially the boat to help us study the flora and ecosystems around the Laguna Yaxha and Rio Ixtinto. To Bióloga Lic. Lorena Lobos -Asesora de Unidad de Uso Público del Parque, for her experience in biology, her initiative of starting this program and cooperation during our field work.

Also we wish to express our appreciation to the local guides and park rangers of CONAP and IDAEH who accompany us on each day of our field work in the park. They know both the local flora and fauna and they know the trails that facilitate our being able to reach áreas that we notice on aerial photographs as places we wish to study. It is very important to find, list, photograph, and write about each aspect of flora, fauna and ecosystems so these can be preserved and protected for future generations. We thank park ranger Teco (Moises Daniel Perez Diaz) and his colleagues.



- ▲ *This is a print about five meters long from the Mimaki UCJV300-160 UV-cured print. The image is a panorama taken from the top of an 8th century Maya temple-pyramid at the ruins of Naranjo (PNYNN). The panorama is stitched together with software from multiple photos which were taken using a rotating tripod head.*

*Although you see “the Neotropical seasonally dry rainforest,” in the middle is an unexpected treeless area which is a seasonally inundated savanna. At the left side it merges into a tinal ecosystem; at the right end it merges into a cibal (sawgrass) ecosystem which in turns merges into a jimbal ecosystem (native bamboo, *Guadua longifolia*).*

These prints help us at lectures to let the audience see the panoramas. On a screen in a lecture room you can’t see detail very well if you are sitting in the back of the audience. So we take these 5-meter long prints to the lecture room and let the audience have the images on their table.

This photograph is in the office of FLAAR Mesoamerica. Senaida is at front left; she is an experienced plant scout, adept at finding heliconia and wild vanilla orchid vines. Next to her is Gaby, who helps us with many aspects of office research and field trip work. Next is Vivian, the manager of the FLAAR Mesoamerica team. Then you see Denerie, holding her favorite toy. Denerie will learn ABC’s, will learn colors, numbers, in the FLAAR office, using our experience teaching Shaila in recent years. Next to Denerie is Nancy (who is the sister of Denerie’s mother; Nancy takes care of Denerie). At the end is Victor, a university student including biology who helps us identify the flora and fauna that we find in Parque Nacional Yaxha Nakum Naranjo. In the middle is Dr Nicholas with his finger on the cibal-savanna area that Arqueologa Vilma Fialko, Arquitecto Raul Noriega told us about and then Horacio Palacios and colleagues helped us find the trail to reach this area. They are the helpful team in the Naranjo sector of the park. There are comparable teams in the Yaxha and Nakum sector of the park who cooperate with our team in those parts of the park.

By using specialized camera equipment, and inkjet printing, we are adding new capabilities for ecologists, botanists, and zoologists for studying the biodiversity of the remarkable areas of this national park.



▲ These panorama photos show the Rio Holmul, north of the Naranjo sector of the park (PNYNN). One side of this river has lots of native Maya bamboo (bamboo native to Guatemala, not from South America or from China).



◀ *This is the Mimaki UV-curing roll-to-roll inkjet printer printing these panorama photographs of Parque Nacional Yaxha Nakum Naranjo.*

This PDF may be cited as follows:

HELLMUTH, Nicholas
2019 Wide-format Inkjet Prints are helpful to Ecology & Botanical Research.

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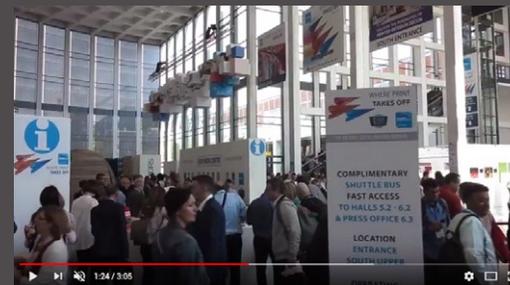
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