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Interesting Applications made with the



EFI VUTEk UV-curing Roll-to-Roll Printers

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Interesting applications made with the EFI VUTEk UV-curing Printers



A red PVC roll is being placed in the loading area of the EFI VUTEk D3r.

This is our third publication covering the EFI VUTEk printers evaluated by Dr Nicholas at one of the EFI factories in February 2020.

In the previous FLAAR-REPORTS, we covered the technical aspects behind the EFI VUTEk printer's output quality and wide color gamut on traditional (white) media.

In this report, we would like to focus on the printer's capability on whose solid color background (or no background whatsoever) opens up new options for printshops to please their clients:

- Colored vinyl
- Black matte vinyl
- Clear media

Printing on these materials is possible because the EFI VUTEk D3r can be ordered with White ink option and Clear option, and together, they can produce special applications.

With the EFI VUTEk 3r+/5r+ and the Pro 32r+ you can order white ink OR clear, but with the D3r/D5r you can have white ink AND clear, together.

EFI has years of experience developing technology to produce innovative applications using white ink. Therefore, the new EFI VUTEk D3r was designed to offer several advanced white printing modes. A noticeable advantage of visiting the factory in person was being able to meet and speak with the software engineers. Obviously EFI has RIP software engineers for decades, and equally obviously they have software engineers for firmware. But in this EFI VUTEk factory I learned that there are software engineers that prepare special software for facilitating different innovative options.

Besides, with the clear option, you can produce glossy or matte finishes. You can also cover specific areas (spot varnish) or perform full flood over a print area, as a protective coating.

In this report we also want to show you the story of why Dr Nicholas chooses to use educational illustrations for test prints in his printer evaluations.



Printing on this type of colored media without losing color accuracy is possible because the white ink neutralizes the background color of the image being printed on.

The illustrations used by Dr Nicholas during his visit to the EFI factory were made by a team of digital artists and university Graphic Design students who work in FLAAR's flora and fauna research division and also produce educational material on plants and animals for schools in rural and remote areas in the mountains and rain forests. This educational division is named MayanToons.

These illustrations, and even the small text above them, all are sharp. The printer rendered the exact colors of the original file. Having your own designs, photographs or illustrations helps tremendously in evaluating a printer's performance because you know first-hand what the original color looked like.



Another type of material you can print on when you have white ink is black media. Since the EFI VUTEk D3r has several print modes with white ink, you can achieve a very dense layer of white to print on this type of material without losing color quality.

The black PVC opens up several creative opportunities for print businesses.

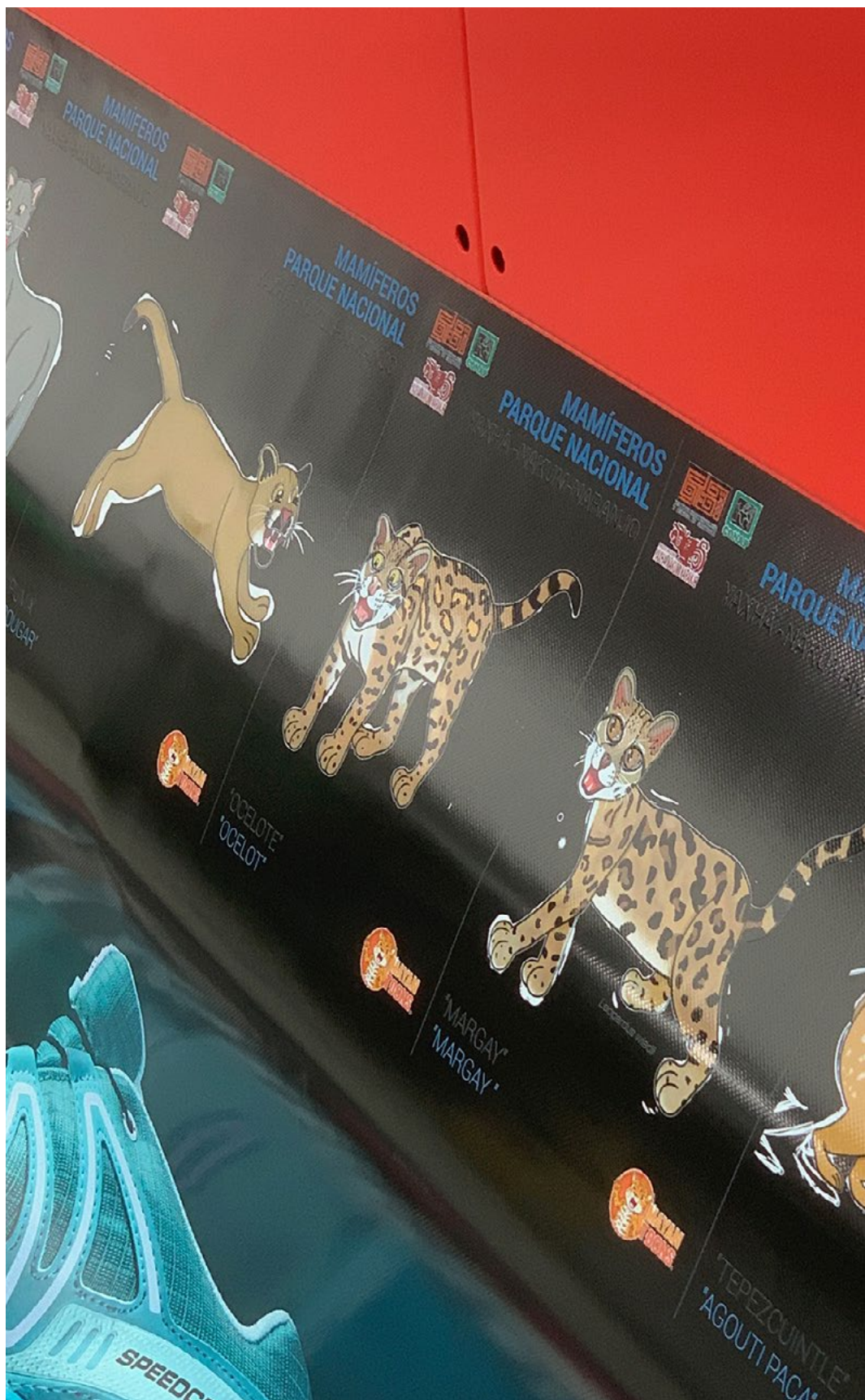
The illustrations of different felines native to the Mesoamerica region, were used to test this dark material.

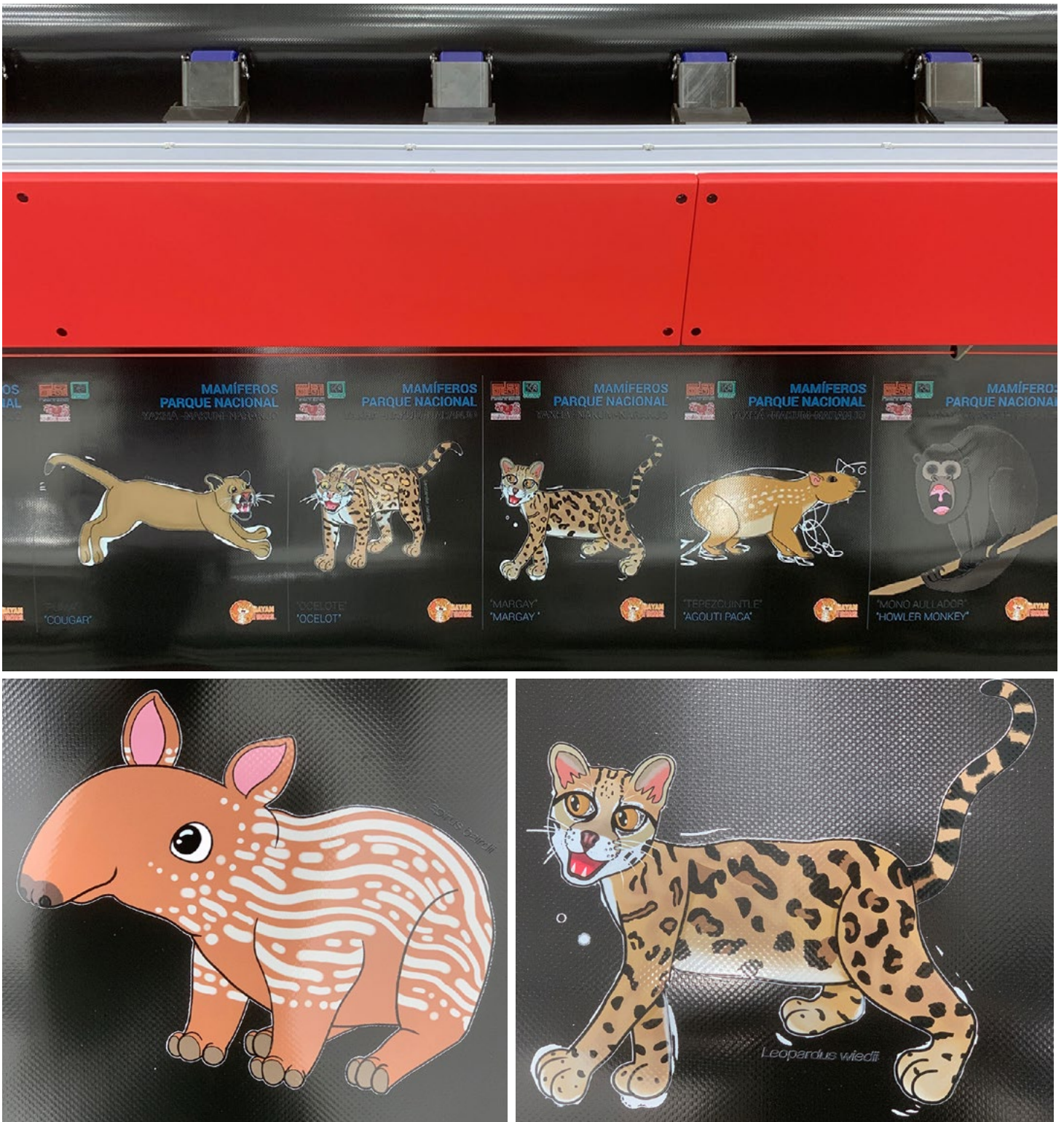
When you order white ink, you can have multiple white print modes for different applications some of which are considered difficult to achieve:

- White only
- White as background
- White on top of colour
- White for backlit
- Five-layer printing for blackout printing on clear
- Various additional print modes

As mentioned earlier, with the EFI VUTEk D3r and D5r, you can order white ink and clear together.

With the EFI VUTEk 3r+/5r+ and with the EFI Pro 32r+, you can choose to have white ink or clear.





The final result is a faithful copy of the original design in terms of color, even on black PVC.



Clear media is the third interesting material you can print on with the EFI VUTEk D3r. The printer has specific print modes to print on clear media. As you can see, the colors are totally opaque, the transparency is eliminated by the dense white layer behind the color layers.

This type of media is especially useful for creative applications in the retail industry. You can print transparent POP signage for windows. You can have one-side prints, or two-side applications.



Tomer Ohavi, EFI's Product Marketing Manager holds a colorful sample of a stock image printed on clear media. The EFI VUTEk printers have several print modes for white ink applications on transparent media, so that the opacity of the image is total.

This chart illustrates the optional ink configurations available for each line of EFI roll-to-roll printers:

Availability	EFI VUTEk 3r+/5r+	EFI VUTEk D3r/D5r	EFI Pro 32r+
CMYK + Clear	✓	✓	✓
CMYK + White + Clear	NA	✓	NA
Finishing	Matte & Gloss	Matte & Gloss	Matte only



Back in the FLAAR-REPORTS office, Dr Nicholas prepares the samples to be evaluated. A number of aspects are examined to determine print quality.



Dr Nicholas and Flor Setina examine the samples printed on red PVC, black PVC and transparent media.

These samples show no edge splatter, nor misting nor any other print quality issue. In spite of using a colored media, the colors were accurate and the overall print quality is very nice.



In the photo above, four members of the FLAAR Mesoamerica botanical, zoological, ecological research team hold the samples printed on red PVC, just minutes before being rolled up again to be carried to a school in a remote rural area in Guatemala.



Dr Nicholas and other members of the FLAAR research team showing the sample printed on black PVC.



Josefina Sequén holding the sample printed on transparent media. Josefina is one of the students that has shown extraordinary progress in her illustration skills. She works with Graphic Design software from Adobe and has quickly learned to use a Wacom drawing tablet.



We have never had our images printed on black PVC or on red PVC; and rarely on transparent material. So we got some innovative results from the EFI VUTEk D3r, in the factory. This is one reason they call it the D series: D=Design (what you design, the EFI VUTEk D3r and D5r can print accurately).

The FLAAR-REPORTS office is on the edge of a hill. Since there are several different FLAAR teams working in this six-level building, here you see several of the university students from the flora and fauna research division (that's why you see a "jungle" around us: this is the FLAAR Mayan Ethnobotanical Research Garden). The FLAAR-REPORTS team occupies the entire fourth level of the building.

Dr Nicholas hikes to the school for Q'eqchi' Mayan children in the aldea Plan Grande Tatin. The mayor of the nearest city kindly provided a 4-wheel drive vehicle to reach the entrance of this village.

In his hands Nicholas has the print produced by the EFI VUTEk factory.

The school is ahead on the left. The open area is the soccer playing field, a great place for kids to exercise.



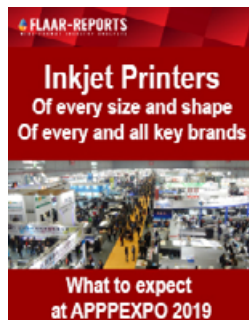
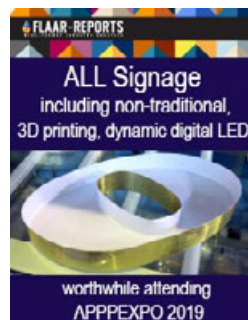


The students definitely like these prints (that show local animals). No one has ever brought this kind of educational banner to this school. The hospitable school teachers are at the right side.

After visiting the school and donating the print, we hiked several hours to a cave, Cueva del Tigre (local word for jaguar is tigre). An adventurous hike since there were bright orange wild native heliconia plants on both sides of the trail. And we had to cross a raging river that was well over waist high.

We have a potential 4-year research project in this area, and one aspect is to prepare educational material for the local schools. So as soon as trade shows are open again, we look forward to printing more samples to document print quality, and then donate these print samples to the schools in this rain forest area. In the background you can see the rain forest that surrounds this village. You can see them in detail, close-up, on our www.maya-ethnobotany.org and www.maya-ethnozoology.org. The donations to the school are on the home page of www.FLAAR.org.

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