The Bateleur
42hp System

The sub square on the VCO is an ideal candidate for the classic NES 8-BIT waveform. Let's 1-UP it with a crash-course in Through-Zero FM and Pulse Width Modulation. We'll be using the VCOs waveforms as sync mods an octave above the CARRIER frequency, the noise will destabilize the signal subtly. We'll be using the VCF in self-osc to modulate the PWM for harmonic motion in the fundamentals. All your bass is belong to us.

Suggested settings: short, pointy pulses is what we're aiming for. Release to taste for a "tail".

The modulation depth control will set the sensitivity of the Through-Zero circuit input gain, by default the TZFM mode has a minimum threshold already active even at the "off" setting (all the way anti-clockwise) - think of it as an "intensifier", not a classical depth control in the TZFM mode. Approach by feel, not numbers :)

VCO range switch in the MID-to-2nd position, ideally your CARRIER is in a higher register than the MODULATOR.

Toggle through the Envelope Generator's Curvature characteristics* by pressing mode + time toggles simultaneously.

Set the VCA's modulation depth. Analog saturation will occur beyond certain values.

TZFM modulation input, highly sensitive, threshhold detection active immediately upon flicking the switch**.

Suggested patching:
The VCO will be an octave above our CARRIER (sub), when patched to the TZFM modulation input, even the lowest gain will affect the TZFM circuit, subtlety is key. Listen and fine-tune.

Set the VCF mode switch to the MID position for self-oscillation + 1v/oct tracking unisono.
Optionally set the switch to the DOWN position for self-oscillation without tracking to manually modulate the Sinusoidal output's frequency.

The cutoff frequency control will set the VCF in self-oscillation, Sinusoidal output's modulation pitch.

Noise will have a very interesting, de-stabilizing effect on the TZFM circuit.

Mix to TZFM modulation input. The combined signal is our 2nd MODULATION signal.

*Green LED = Through-Zero FM mode.

**Consult VCO technical specifications on modulation modes and switch positions as well as input ranges.

As usual, the VCA modulation input is normalized to the cutoff modulation input on the Expander module.
For this patch, we want to avoid the Envelope CV affecting our VCF's cutoff frequency, we can either set the cutoff control to 0 or use a dummy cable to break normalization.

Set the modulation mode switch to the DOWN position for TZFM mode.
The modulation status LED* will give us an indication on the type of modulation we're applying.

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