

Point & Shoot Nature Photography with the **Sony RX10iv**



Stephen Ingraham: The Point and Shoot Nature Photographer

I have never owned a camera that I enjoy as much as the Sony RX10iv. In my opinion It is almost the perfect camera for nature photography. It features what I am convinced is one of the best zoom lenses ever built...and the ZEISS designed Vario-Sonnar's 24-600mm range, plus macro, covers so many situations so well that I can carry it confidently on all my nature adventures...whether I am photographing birds and wildlife, landscapes, or macro...or whether (as is usually the case for this nature photographer) I need to be prepared for anything. The lens is bright and stunningly sharp at all focal lengths. With the Sony RX10iv's powerful processing engine and hybrid auto focus, it makes fast action sequences, like birds in flight, not only possible, but easy. The sophisticated 1 inch sensor and that same processing engine provide excellent image quality and open up possibilities for multi-frame effects...HDR, Anti-motion Blur, Multi-frame Noise Reduction, etc...that will expand your creative range in ways no other compact fixed lens camera can match. And for those challenging opportunities, it has many intelligently designed scene modes to make your life easier, so that you can seize any and every opportunity.



I am a Point and Shoot Nature Photographer. That means that I let the camera and its automation do everything it can for me, so that I am free to do what only I can do: see the potential in nature, and frame and compose effective images. The Sony RX10iv is my almost perfect tool.

In this short booklet, I will detail how I use the Sony RX10iv for Point and Shoot Nature Photography. I will give you my basic Program Mode settings for birds and wildlife, and my custom Birds in Flight and Action modifications to the Program mode. I will detail how I use in-camera HDR for effective landscapes. I will tell you how I use the Anti-motion Blur mode for low-light and night photography. And I will take you into the Macro Mode for those times when you feel like going small and close. This is not

an exhaustive RX10iv manual. There are many functions of the this camera that I do not use and have not explored. This is a guide to using the RX10iv in Point and Shoot mode, for creative and satisfying nature photography: birds, wildlife, bugs, flowers, and landscapes.

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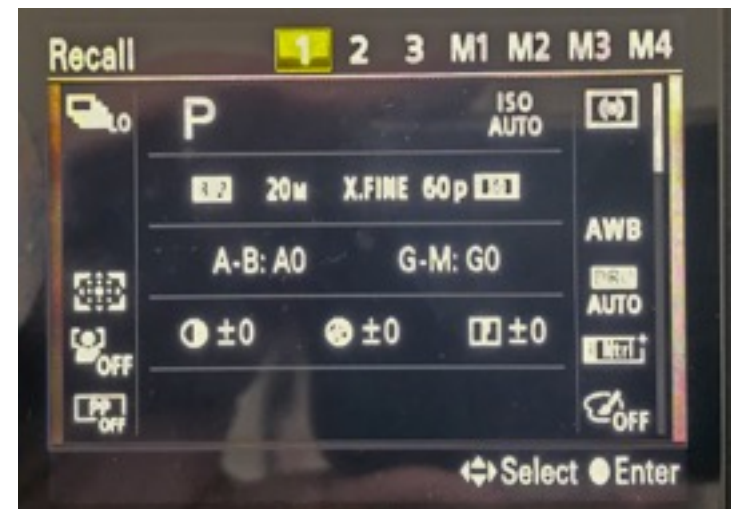
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Chapter 1: Basic settings for birds & wildlife

I shoot all my images in jpeg Extra Fine, at 3:2 and full size. I use jpeg because I want to be able to use the special features and modes of the RX10iv that are only available in jpeg, and because the excellent exposure control and in-camera processing of the Sony RX10iv produce consistent quality images that require only minimal processing.

That said, I post process all the images I keep. My goal in the field is to let the camera produce the kind of file that will produce an image I am satisfied with, *after* I finish post processing it.

For birds and wildlife, I use Programmed Auto mode (hereafter just “Program” or “P”) because I want to be able to control where the camera focuses and takes its exposure readings, and I want to be able to use Exposure Compensation to quickly adjust for radical light conditions. I also occasionally use Program Shift (more on both later).



Basic settings (working through the menu pages in order):

1. P mode (on the main control dial)
2. jpeg, Extra Fine (Camera Menu 1, Screen 1)
3. Image Size and Aspect: Full Size (20mp), 3:2 (Camera 1, Screen 1)

4. Shooting Mode: Continuous Shooting Low (3.5 fps)
(easiest found in Function Button #1)
5. Focus Area: Expandable Flexible Spot
(Function #4)
6. Focus mode: Continuous, on the Focus Mode dial
7. ISO Auto Min SS: 1/250th (ISO Auto on Function #5,
then Camera 1, screen 7, scroll down to 1/250th) or simply
set to Fast.
8. Metering Mode: center (Function #6) or you can try
Highlight (protection)
9. DRO: Auto (Function #8)
10. EV Compensation 0 on the EV Comp dial
11. Creative Style: Neutral (Function #9)
12. Grid: Rule of Thirds Grid (Camera 2 menu, screen 7)
13. I save this to Memory along with the Zoom set to 600mm. (Set the zoom, Camera menu 1, screen 3,
Memory)
14. Anything not listed is at factory default.



Some of those settings might benefit by some explanation.

Program mode: Program always selects the largest aperture, the fastest shutter speed, and the lowest ISO for the given light conditions. Since the ZEISS Vario-Sonnar lens is optimized for best performance at its widest aperture, in almost all situations, these are the exactly the choices you would make if you wanted to control the exposure yourself. Along with Minimum Shutter Speed ISO (below), DRO (more later) and the occasional use of Exposure Compensation and Program Shift (more on both later), Program frees you of manual exposure settings, and produces pleasingly exposed images in almost any light.

Shooting Mode: Continuous Shooting Low (3.5 fps): I have experimented with continuous shooting with every camera I have owned over the past few years. My conclusion is that, for birds and wildlife that are not running or flying, you do not need to shoot at 10 frames per second, much less 24 fps. The primary reason for shooting in continuous at all is insurance...to make sure you get at least one sharply focused and pleasingly posed shot out of every burst. Even for normal action sequences...preening, feeding, walking, etc....10 fps too often gives you 10 (or 20) almost identical frames. 2-4 fps, gives the animal time to move and reposition itself so each frame is unique, or more often unique, and you have choices in which one to keep.

Focus Area: Expandable Flexible Spot with the Focus Mode dial set to C (continuous). With the hybrid auto focus on the RX10iv you have the best of both worlds, contrast auto focus for low light, and phase detection auto focus for brighter light and moving subjects. To make sure they both are active, and to control where the camera focuses, the best setting for more or less stationary subjects seems to be Expandable



Flexible Spot and Continuous on the Focus Mode dial. Turning off Continuous disables Phase Detection. With Expandable Flexible Spot and Continuous on, you will get a small square of green focus indicators in the center of the screen, lighting intermittently as they lock on focus.

ISO Auto Min SS: 1/250th: Birds and wildlife are often in shadow, or best viewed early or late in the day. You do not want your shutter speed to drop too low and risk images blurred by camera or subject motion. You can't say "stand still now" to a warbler or a moose. By setting ISO to Minimum Auto Shutter Speed (Auto Min SS) to 1/250 you are telling the Sony RX10iv to do everything it can to keep the shutter speed at above 1/250th, even if it means bumping up the ISO. 1/250th is fast enough to ensure sharp images of all but the most active subjects. If the light is too dim, so that the the ISO required is above 6400, the shutter speed will be reduced below 1/250. So, basically, you do not have to think about shutter speed at all :) As an alternative setting, you might try simply setting Min SS to "Fast"...this will keep your shutter speed around 1/1000th but use higher ISOs.

Metering Mode: center: When photographing birds and wildlife, the subject is often relatively small in the frame. You want your subject correctly exposed. On the other hand, you still want a pleasing background. Center metering will balance the subject and the center of the frame, placing most of the exposure emphasis on your subject, but also making sure that your background is not too light or too dark. DRO, with is the next setting, takes care of the rest. If you are shooting a lot of birds in direct sun, with highlights, you might try the Highlight setting, which protects the highlights from burning out.

DRO: Auto: Dynamic Range Optimization reads the



scene and attempts to balance highlights and shadows for a more pleasing exposure, with a bit of apparent extended tonal range. It applies special processing to both highlights and shadows, knocking the highlights down a bit, and pumping up the shadows. It is especially useful for high contrast subjects and will maintain feather or fur details that might otherwise be lost in a straight “correct” exposure. DRO processing might add a microsecond to the write to card time for the RX10iv, but it is worth it!

Creative Style: Neutral: The RX10iv has an abundance of Creative Style settings. Each setting is actually a jpeg processing profile that changes the overall look...shadow and highlight balance (contrast), sharpness, and saturation...of the resulting jpeg image. Some experimentation has lead me to use the Neutral setting for a more natural look, and easier post processing.

Grid: Rule of Thirds Grid (Camera 2 menu, screen 7): The rule of thirds grid just reminds me to think more about composition. More thought is better. :) Note the grid in the LCD image above.

I save all of these settings to Memory 1, along with the Zoom set to 600mm. That way, I can quickly select this modification of Program by putting the main Control Dial in the MR (memory recall) position and selecting Memory 1. (With the dial at MR, the Function button gives quick access to the different memories). Good to go for birds and wildlife.



Overriding Basic Settings for specific situations:

Of course there will be specific situations that require intervention on your part. The advantage of using Program Mode as the basis for my birds and wildlife settings is that it is very easy to adjust, on the fly, for unusual conditions and challenges.

Lighting Challenges:

Exposure Compensation: Sometimes specific lighting conditions will be beyond the ability of the metering system to produce an effectively exposed image, even with DRO set to Auto. Effective is not the same as “correct.” The exposure system always produces the “correct” exposure, given the metering area. But “correct” is not always “effective”, especially when doing nature photography.

Classic examples of challenges are birds or wildlife silhouetted against a bright sky, and birds or wildlife with exceptionally light or dark plumage or fur. Adjusting for those specific situations is easy...unlike many cameras, the Sony RX10iv has a built in Exposure Compensation dial in the right corner of the top-plate, where it falls easily under your thumb. Digital camera exposure systems are calibrated for flesh tone, since the vast majority of photos taken are of human faces. That means the in the field when photographing natural subjects the highlights tend to “block up”...whites and bright colors (especially reds) lose all detail and subtle shading. White becomes pure white...reds are solid red, etc. With my previous P&S cameras I always used $-.3$ EV to help hold the highlights. On the Sony Rx10iv, with DRO on Auto, I do not find that necessary. I leave it set to 0 most of the time.



However, when you have a bird or wildlife silhouetted against a sky or other background that is any brighter than the subject itself, the camera's correct exposure will leave the bird or beast too dark...shadowed and without detail. To compensate for that, you can set the EV Compensation dial to a positive number. I generally use between +0.7 and, as the contrast between subject and background increases, up to +2 EV. Since the RX10iv has an excellent eye-level viewfinder, you can actually see the effect of increasing EV Compensation as you turn the dial. Just turn it to the positive side until you see enough detail in the subject to satisfy you, without losing all detail in the background. If the background is too bright you may not be able to compensate...but in most situations between +0.7 and +2 EV will do the trick and result in a much more pleasing photo overall. Remember, you can also do some

highlight and shadow control in post processing. The goal is to produce a file with enough detail in both the highlights and shadows to produce an image that satisfies you, after you finish post processing.



At the other extreme, when the bird or wildlife is too bright, especially in full sun, you will want to turn the dial to the -0.7 EV, or further as needed. There is less margin for error on the negative side, as the background will quickly go too dark...with shadows going completely black.



That can make for a very unnatural looking image, and, though again, DRO will help, it can not do miracles. Adjust EV to the negative side only until you see detail emerging in the brightly lit plumage or fur. Some additional highlight and shadow control will almost certainly be necessary in post processing.

Remember! When you set the EV Compensation dial, you must return it to its normal setting as soon as you finish...otherwise you will overexposed or underexposed all photos taken after that point!

Program Shift: As I mentioned, Programed Auto Mode will automatically select the widest aperture, the fastest shutter speed and the lowest ISO possible for any given situation, and most of the time that is exactly what you want. However, while the 1 inch sensor of the RX10iv is 2.7 times smaller than a full frame sensor and provides an apparent depth of field for any given framing 2.7 times as great as you would see on a full frame camera, there are still times when you will want greater depth of field...especially when photographing three dimensional subjects at close range. This is where Program Shift comes in. The Program Shift control...the thumb wheel under your right thumb is set to Program Shift by default...allows you to quickly shift the balance between aperture and shutter speed, while still maintaining the correct exposure. To get a smaller aperture for greater depth of field is as easy as scrolling the thumb wheel and watching the numbers shift at the bottom of the finder. Again, you can see the depth of field change in the eye-level viewfinder or on the LCD. Be cautious here...as selecting too small an aperture will increase depth of field, but also limit resolution.

Unfortunately, since Program has almost always already selected the widest aperture possible in any given light, it is rarely possible to adjust Program Shift for *less* depth of field, as you might want to if you are interested in isolating the subject against an out of focus background for the portrait effect. The increased depth of field of a smaller sensor system is a blessing most of the time, but it does come with its own limitations.

Focus challenges:

Though the hybrid auto focus on the Sony RX10iv is among the fastest and most accurate focus



systems of any camera on the market today, there are still times when it will fail you...especially in low light, with low contrast subjects, and when the subject simply does not fill enough of the frame to cover a significant portion of the focus area.

Remember, when the Focus Mode dial on the lower left front of the camera is set to Continuous, both Phase Detection and Contrast Detection focus are engaged. Phase Detection will override Contrast in almost all situations. However, right next to the Continuous settling on the Focus Mode dial is one of the most powerful features of the Sony RX10iv...DMF or *Direct Manual Focus*. When the camera cannot lock on focus, for whatever reason, it is easy just to toggle the Focus Mode dial over to DMF. This gives you the same Expandable Flexible Spot focus area, but now limited to Contrast Detection Auto Focus...which is more

sensitive in low light. It also prevents the focus from seeking among a cluster of focus spots for the correct one, which makes it more likely to lock on to small subjects in a big field. Finally it gives you the ability to manually focus in the most difficult situations. I use DMF two different ways. If the camera is having difficulty determining what I am trying to focus on, and is, therefore, doing a lot of seeking, I can manually focus, without touching the shutter button, and get the camera close to correct focus. When I then half-press the shutter release, it will generally lock on focus immediately...as it knows where I want

it to start seeking and does not have far to go. If that fails, I press the shutter release half way and turn the focus ring slightly to engage the magnified view. With the enlarged center of the frame, I can then focus by eye. When I find correct focus, I do not let off on the shutter button...I just continue my press to capture the image. The viewfinder will pop back to the unmagnified view automatically. The focus ring on the Sony RX10iv is not a direct manual control. It is what they call “fly by wire” and it takes some getting used to...but with practice, you can successfully focus in the most extreme situations...even when shooting through fairly heavy obstructions...lots of leaves and branches between you and your subject.

Finally, if you have your touch screen turned on in either Expandable Flexible Spot or DMF, you can reposition the focus square by simply tapping the screen over the subject...or even the subject’s eye. When I have time to think about composition, or if the wildlife fills the whole frame and I want to make sure the eye, as opposed to the shoulder or breast or whatever is closest to me, is in focus, I simply tap the screen where I want focus and the camera does the rest. Remember to recenter the focus square when finished. Having the touch screen on does require some care, as it is easy to touch the

Using the touch screen. One of the most powerful new features of the RX10iv is the touch screen. Though Sony could easily have done more with it, it is still useful in many modes. On the RX10iii in all modes that used wide area or wide area lock on auto focus (Sports, Macro, Anti-motion Blur, etc.) you had no control over the focus point. With the touch screen enabled, in all those modes, you can now simply touch the screen to establish a momentary focus point. The focus point is released by pressing the center button on the 5 way control wheel. Similarly, with the focus area set to expandable flexible spot, or any spot mode, you can move the focus point by tapping the screen where you want it to focus. (In this mode, the Delete button recenters the focus spot.) Remember to reset the spot to center when done with your composition (or if you inadvertently move the focus by touching the screen.)

screen somewhere after turning the camera on, but before it comes up to your eye. It only takes a second to reposition the focus point, and, all in all, having touch screen active has more advantages than disadvantages.

Give these settings a try for birds and wildlife. They are the result of almost a year with the Sony RX10iv on three continents, in the widest possible variety of situations...from equatorial Africa, to tropical rainforest, to arctic cold in North East USA...with every kind of wildlife imaginable!

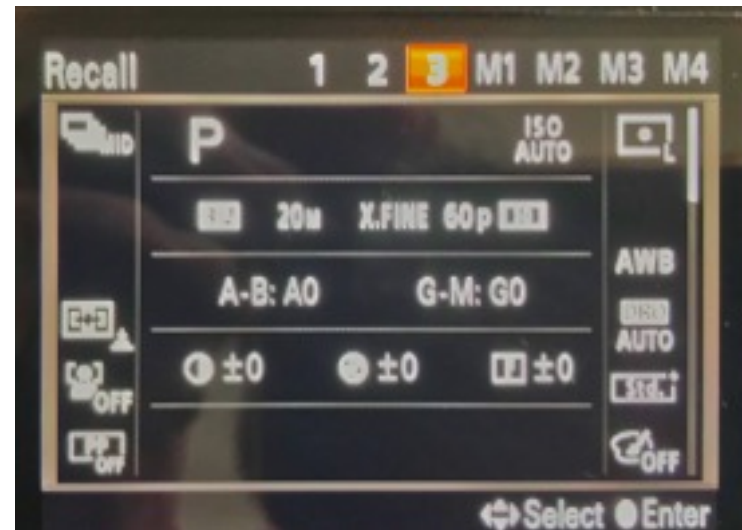
Chapter 2: Birds in Flight and Action mode

My settings for birds and wildlife work well for both when they are not in rapid motion. A slow walk is fine. Preening or grooming is fine. Most feeding activity is within range. However, when the birds are in flight or wildlife is on the run or doing anything that might be described as *action*, then a different modification of Program is called for. I am still, honestly, experimenting with different settings, especially focus settings, but I am fairly confident that the set I am using now are going to do the trick for most birds in flight and action sequences. (Birds in Flight will be BIF going forward.) Again, going in order in the menu pages, they look like this. I am, by the way, only listing settings that are *different* than my standard settings for birds and wildlife. You can assume that anything that I do not mention, is the same as my standard set. I should also mention that, with the exception of EV Compensation and DRO, you can get these same settings by simply putting the camera in Sports Mode in Scene Modes (SCN on the main Control Dial, Function button to set the Scene Mode to Sports.)

1. Shooting Mode: Continuous Medium (10 fps) (Function #1)
2. ISO Minimum SS: Set to Fast. Function: #5 ISO Auto, then Camera 1, screen 7)
3. Focus Area: Lock-on Auto Focus, wide (Function #4)
4. Focus Mode: Continuous on the Focus Mode dial



5. Metering mode: large spot, Focus Point Link on (Function #6, then Camera 1, screen 7)
6. Creative Style: Standard (Function # 9)
7. I save this one of my memories as I do my standard birds and wildlife settings. (see page 5)



So, why wouldn't you just use Sports Mode? When I teach Point and Shoot Nature Photography workshops I generally recommend that my students, when first attempting BIF or action sequences, *do* just simply set to Sports Mode and fire away. Sports Mode uses Wide Area Lock-on Auto Focus so it does an excellent job of picking up and tracking moving subjects. It is also biased for faster shutter speeds to freeze action. And it is pre-set for Continuous Shooting at 10 fps. You can adjust both the Focus Area (your 2nd choice is standard Wide with no tracking) and the shooting rate (up to 24 fps) by using the Function Button. However, you do not have the option to turn on DRO, or to use Exposure Compensation...both of which I feel are critical for BIF and action sequences. Especially when shooting BIF, the background is very often the sky...and some + exposure compensation will be required to correctly expose the bird in silhouette. Then too, DRO always produces a more pleasing balance between highlights and shadows. Why not use it?

Continuous Shooting I used to use 10 fps to capture most BIF and action sequences, without eating up to much of my memory card. 24 fps is video speed, and what you get is essentially a series of 20mp exposures that could be strung together to make super high resolution full motion video. It is, in my opinion, overkill for most action situations. It produces too many all but identical frames, even when the action gets fierce or the flight is full on. These days I use slow speed continuous (about 3.5 frames per

second, and I find that gives me a nice sequence of wing positions or body movements on all but the fastest birds. And again, you don't fill your memory card as fast, or have as many exposures to sort through.



ISO Minimum Shutter Speed set to Fast will keep your shutter speed about 1/1000th, and will freeze all but most frantic motion. For BIFs it will freeze all but the wingtips of most birds (not hummingbirds, of course). I prefer that look, with the wingtips slightly blurred, to the completely stationary wing, but if you want to freeze the entire bird, you can set ISO Min SS to 1/2000th, or the Faster setting.

Focus Area set to Wide Area Lock-on Auto Focus will pick up BIF against an open sky, clouds, and even a confusing background. It should not work nearly as well as it does, but the Sony Hybrid Focus System is amazing. Once locked on to a moving subject, the Sony will track that subject even across a very confusing background, in the presence of

other moving subjects, and even foreground obstructions. And, again, with the RX10iv's touch screen turned on, it is easy, when required (generally for smaller birds or more distant wildlife), to set the focus area to a small square anywhere on the screen with a touch. It is still tracking auto focus, so the point may wander if it does not detect a moving subject in the small square, but it helps on occasion to be able to direct the camera to a specific subject. You can release the focus point and go back to wide area at any time by pressing the center button in the 5 Way Control Wheel on the back of the camera. Best of both worlds. (This works in Sports Mode as well.)

Focus Mode. For tracking auto focus to work, your Focus Mode dial must be set to Continuous.

Metering mode: large spot, Focus Point Link on. This hopefully will compensate for many backlit situations without resorting to EV compensation.

Creative Style set to Standard seems to work well.

As mentioned, I like to use DRO Auto for BIF and action sequences. It just saves me using more highlight and shadow control in post processing. And, it is often necessary, especially for BIF, to set the Exposure Compensation on the + side (+0.7 to +1, perhaps even higher against bright sunlit clouds) to maintain detail in otherwise silhouetted birds. I program +.7 into my BIF settings.

There is a technique for BIF that takes some practice and it is best learned by going somewhere where there are lots of birds in the air all the time. For one thing, you will be panning with the birds. That alone takes practice. If you can not keep the bird in the frame at 600mm equivalent, start by practicing at 300mm equivalent. Pick up the bird and rotate your whole body, from the waist up, to keep the bird in frame. With an open horizon and lots of space, you may even have to shuffle your feet as you swing around. Practice a few times (or a few hundred times) without pressing the shutter. What will happen, especially on fast moving birds, is that you will pan too fast or too slow most of the time, and the bird will drift through the frame. I am always a bit slow on my first day out after a break, and I have hundreds of images of the back half of the bird. Practice. Once you are confident you can keep a flying bird in the frame, when you have the bird well in the frame, half press the shutter release and see if the focus will lock on. Little dancing green squares over your subject mean that focus is locked. There is also a focus lock indicator (Green dot in green brackets) in the lower left corner of the viewfinder. If panning with a flock, do not be concerned if the dancing green squares shift momentarily to another bird in the flock. You should still get the flock in focus.

This modification of Program also works for masses of birds in motion: geese panics, etc. For action sequences, if the subjects are close enough, I use these settings as is. If the subjects are further off, as is often the case with action shots, I will touch the screen to set the focus point and place the small square right over the subjects until focus locks on.

Finally, there are times when the action is too fast and too close to use either the Eye-level Viewfinder or the LCD. When photographing Scarlet Macaws at Copan Ruins in Honduras,

I resorted to simply pointing the camera at the rapidly flying birds, and firing off a burst semi-blind, by instinct as much as intention. It worked surprising well. The only trick is to take a lot of frames. I took over 3000 that day, and came home with about 30 shots I would not have gotten any other way, the image on the cover among them.

In the past I have saved my BIF and Action modifications of Program mode to Memory 3 so that I can access the set quickly using the Function Button. I also save the zoom position at 600mm equivalent so the zoom automatically zooms to full as soon as I choose Memory 3. These days I assign a similar set of settings to a Registered Custom Shooting Set and then assign that set to be recalled using the Focus Hold button on the lens. See below.





I have included some examples of BIF and action sequences...taken at Bosque del Apache National Wildlife Refuge in New Mexico (and one from Kenya), just to show what the RX10iv is capable of. The great thing about the Bosque is that there are birds in the air all the time, and often interesting action to catch, so you get plenty of practice.





See Chapter 7 for further focus lessons from the field.

Registered Custom Shooting Set for one button recall:

Finally, if you find that you are doing a lot of birds in flight and action photography, you might want to program something like this set of settings into one of your Registered Custom Shooting Sets and assign it to a button. You can only save some of the settings to a Registered Custom Shooting Set, so some compromises are necessary. The main one is that you must set ISO Min SS to one of the automatic settings, and use that setting for all you program modifications, since you can not save that ISO Min SS to a Registered Custom Shooting Set. I set it to Fast, even though that means that I get slightly higher ISOs and slightly faster shutter speeds for my stationary birds and wildlife than I might otherwise prefer...but instant access to my BIF and Action settings is a fair trade off.

To create a Registered Custom Shooting Set you would open your Registered Custom Shooting Sets in Camera Menu 1, page 4 (Reg Cust Shoot Set). Open Recall Custom hold 1. Each of the items listed

here can be set by opening the item with the center button of the 5 way control wheel, and then choosing the setting to be remembered. As follows:

- Shooting Mode: Program Auto
- Shutter Speed: (can not be set with Program)
- Drive Mode: Continuous shooting
- Exposure Comp: +.7
- ISO: Auto
- Metering Mode: Spot
- Focus Mode: Lock-on AF
- AF On: On.

Once you have created this Registered Set, you assign it to a button using Camera Menu 2, page 9 under Custom Key (Shoot). I assign mine to the Focus Hold Button, which is the last on on page 2 of the list of buttons. This allows me to just put my thumb on the button and hold it in for BIFs and Action sequences...then let it off to return to my regular Birds and Wildlife settings.



Chapter 3: Low Light and Night Photography

One of the greatest challenges for any photographer is low light and night photography...and it is especially difficult if you are attempting to photograph active wildlife. The Sony RX10iv has a special mode, only available to jpeg shooters, that provides surprisingly good low light and night results, even

toward the long end of the zoom. It is called Anti-motion Blur Mode and you can find it under the Scene Modes (SCN on the main control dial). Like HDR for landscapes, it is a multi-frame effect. The camera takes 3-4 exposures at a faster shutter speed and lower ISO than would otherwise be called for in the dim light, and then sums the exposures, while also processing out some, if not all, of the motion artifacts between the exposures. The result can be surprising.



Night photos by flashlight. I do not like using flash in dark situations with wildlife. Most species have excellent night vision, and I do not like to think what a blinding flash does to their eyes. In some countries, Costa Rica for one, outdoor night flash photography is forbidden in natural settings. My solution is to employ Anti-motion



Blur Mode and a high lumen LED flashlight. With some practice, it is possible to hold the flashlight next to the camera and illuminate your



subject. On night drives in Africa, there is often a spotlight mounted on the safari vehicle, which the driver will keep on the wildlife. Such lights are often too yellow, and standard LED flashlights can be a little blue, but you can now get a “daylight balanced” LED flashlight. The Red-eyed Tree Frog here is from a night walk in Costa Rica, taken with a standard LED flashlight of about 350 lumens using the technique

illustrated above. The photo of the Honey Badger, a rare sighting indeed from South Africa, was taken with the combined light of my flashlight and the spotlight on the safari vehicle. The Green Tree Boa was taken from a boat on a tributary of the Amazon River in Peru, with a large Surefire Tactical flashlight...the brightest flashlight I own.



Low light photos without supplemental light. When the light is merely “low” as opposed to being the dark of night, you can still use Anti-motion Blur to increase the quality of your shots.

On a late-afternoon, on a darkish day in Costa Rica, I was able to photograph this Glass Frog (below) by natural light using Anti-motion Blur and full zoom. Without Anti-motion Blur I would have had to jack up the ISO, with a noticeable reduction in image quality, and/or the shutter speed would have been too slow for a sharp hand-held shot at full zoom. With Anti-motion Blur I got a very pleasingly exposed, sharp, almost studio quality, image in difficult light. (See below for a refinement of the flashlight method.)



I have used Anti-motion Blur in even darker situations and at full zoom with stationary birds and wildlife in the dense rain-forest on dark days. The Crested Owl (above) was found a few miles from the Glass Frog, but in such dense cover, and tucked back so deep in the dark shadows, that it was difficult to see with the naked eye. Anti-motion Blur produced a better shot than I could have hoped for with any other method. This is a case where, even if it were not forbidden, flash would not have been a good idea.

Anti-motion Blur for action. While photographing Snow Geese and Sandhill Cranes at

sunrise and sunset at Bosque del Apache National Wildlife Refuge recently, I had the opportunity to experiment with Anti-motion Blur for action and even flight shots. I had little confidence it would work, based on my experience with the Sony RX10iii, however, the new, and considerably faster, sensor and processing engine in the RX10iv handles Anti-motion Blur of moving subjects so well that it amazed me. Bosque del Apache is in the high desert valley of Rio Grande in New Mexico, at about 7000 feet, and once the sun sets, you lose the light almost instantly. Even the last 15 minutes before sunset are pretty dark. I don't expect perfect shots in such conditions, but Anti-motion Blur produced satisfying images of both active Cranes, seen here in mock combat, and birds in flight. I was impressed.



Of course, when using Anti-motion Blur you lose the capacity to shoot continuous sequences. It takes a few seconds for the camera to process the 3-4 exposures and write them to your SD card, but it does capture images you might not get any other way.

By the way, the default focus area for Anti-motion Blur Mode is wide area, however if you have the touch screen on, you can just touch the screen over your subject to establish a focus point. Pressing the center button of the 5 Way Control Wheel on the back of the camera releases the focus point.



Using Video Lights

A refinement of the flashlight and Anti-motion Blur method above, Flashlights are often hard to control (as well as hard to hold). They can either be too bright, especially at closest focus distances, burning out highlights and causing wildlife to react, or too dim, which pushes the ISO up into the high noise range. It is often hard to find the middle ground. This year I have begun to experiment with inexpensive video light cubes and panels made to mount in the flash shoe of the camera, as a flash would. The difference is that these lights give a constant light...not as bright as a flash, but much more gentle and much less disturbing to wildlife. They also have a wide range of adjustable brightness levels, and the bigger one even have adjustable color temperature. I have both the cube style with a single LED...basically a tiny LED flashlight with a shoe mount, and the panel style, with multiple LEDs. Both come with rechargeable LION batteries inside, and are good for your average night walk or supplemental light under a dense canopy for a morning or afternoon. My observation so far is that, perhaps because the light is more diffuse than a flashlight, animals react to it much less than they do to an equally bright flashlight.

Multi-frame Noise Reduction

My second refinement is to use Multi-frame Noise Reduction instead of Anti-motion Blur Mode. MFNR is a setting under ISO...it is the top setting, the Auto above Auto. It does essentially the same thing as AMBM, but gives you control over EV Compensation, focus modes, and exposure modes. It seems to me that it also does some motion masking when stacking the frames, just as AMBM does, though that is not an advertised benefit.

I use MFNR with the video lights for night photography, and just MFNR for low light situations.



Frog with flash shoe mounted light cube at night.

Bats with small light panel (46 LED)

Quetzal under canopy with light cube

All with Multi-frame Noise Reduction.



Basic Light Cube for flash shoe mount

Dual 46 LED light panel setup, weighs less than most flashlights

5 brightness level controls on light panel.

Chapter 4: HDR landscapes



Your classic landscape problem. Lots of drama in the sky. Bright clouds and wispy clouds. Bright greens in the foreground. Dark greens along the horizon. A standard exposure would get the clouds, or the landscape. Not both. And maintaining any green in the dark foliage would be next to impossible. Auto HDR on the Sony takes one shot for the shadows, one for the mid-tones, and one for the highlights and combines the best of each into one image. With some attention to the tonal range in post processing, you can produce an image that comes close to what you might remember from seeing the scene live.

Another challenge for the digital photographer is *the dramatic landscape*...shots with a bright foreground of hills and fields and forest, and a dark, brooding sky...or shots with a dark foreground and bright sky full of big white clouds...or shots that combine elements of both. Or, worst case, a shot of flowing water under a dense forest canopy, with deep shadows and bright sunspots on the stream. Using conventional exposures, you can expose for the foreground landscape and lose all detail in the dramatic sky...or you can expose for the sky and get a landscape with dark muddy colors, and dark green foliage going almost black. Or you can expose your forest stream for the detail in the shadows and get bright white featureless blotches wherever the sun gets through...or expose for the highlights and get inky shadows.

The fact is that the human eyes sees a wider dynamic range...deeper into both shadow and highlight...than any light sensitive material can record. Film photographers employed graduated neutral density filters over their lenses to even out the exposure on landscapes, dark at the top and light at the bottom...and elaborate dark-room techniques to treat highlights and shadows in the same exposure...with some amazing success, considering. However with the advent of digital photography and digital processing it became possible to use multiple exposures of the same scene to extend the apparent dynamic range of the resulting image.

I first discovered HDR...or High Dynamic Range...photography on an early model of the iPhone. Of course digital photographers had been using High Dynamic Range techniques in demanding lighting for landscapes for some time before the engineers at Apple figured out how to do in-camera HDR.

To produce a conventional HDR image it was necessary to take 3-6 separate exposures, bracketed over several stops of exposure either side of “normal”. Some exposures were exposed for the shadows, overexposed, lighter than normal, to capture shadow detail. Some were exposed for highlights, darker than normal, underexposed, and some were exposed



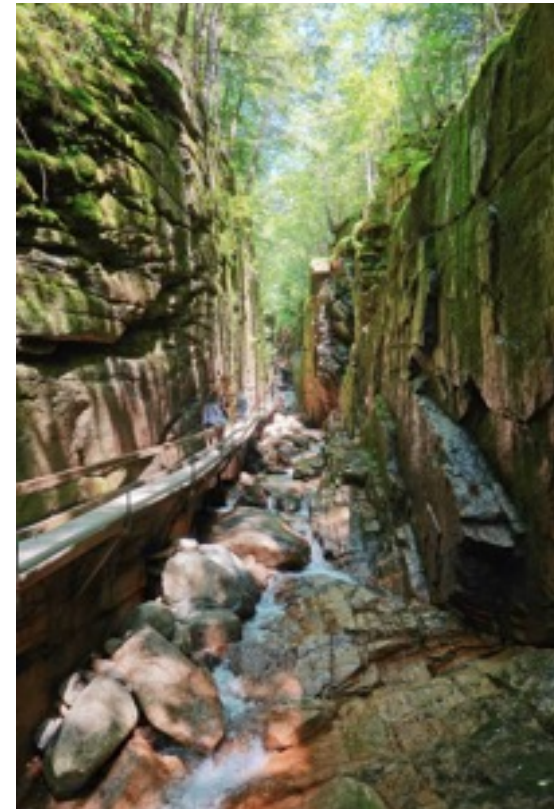
One of the most difficult exposure problems. Sun and shade and running water in the forest under a heavy canopy. I set HDR to a 6EV difference (the highest setting), and then used -2 EV Exposure Compensation to move the whole set of exposures down to the shadow side to protect the highlights. The camera's shadow exposure did a good job of maintaining detail in the shadows, and the highlights are just in range. This is an extreme example of HDR.

for the mid-tones, at what might be considered “normal” exposure. Then, in processing programs on the computer the resulting images were masked so only the best parts showed and then aligned and stacked to create a single image. With creative adjustment of shadow and highlight curves (tone mapping) it was



Two extremes. Bright sky over a bright landscape. Dark sky over a dark landscape. In-camera HDR (Auto in both cases), improves both images and brings home the memory.

possible to produce an image that had pleasing detail in both shadows and highlights, and that looked near enough to what the human eye would have seen in that lighting to fool us into thinking the image had extended dynamic range. Clearly you needed a rock-solid tripod, and time enough to reset your exposures between takes. Then, some real skill was required with PhotoShop or GIMP or whatever you used for the masking and alignment, and a fine touch with the highlight and shadow curves to map the tones into a natural looking image.



In theory, of course, all that post processing work could be done by a computer, using mathematical models of what an extended dynamic range image should look like, and algorithms designed



around that model. Before in-camera HDR there were dedicated applications that could handle the



This should not work. Hand held HDR at about 180mm equivalent, with a bird flying through the frame. Only the super fast sensor and processor in the Sony makes this kind of shot possible.

mapped by hand, but it was only a matter of time before the processors in phones got powerful enough to produce excellent HDR results. From there, it was only a matter of a bit more time before camera makers had to incorporate some kind of in-camera HDR into their menus.

Today, the Sony RX10iv represents, in my opinion, the best result of those years of developing in-camera HDR. Instead of having a Scene Mode for HDR, which is the way almost all other bridge

masking and alignment of 3-6 images...though tone-mapping remained something better handled by a human eye. HDR got somewhat of a bad name during the app era, as photographers too often settled for the easy, surreal, over-cooked look, rather than taking the time to learn to produce a natural looking image. However, even early phone cameras had considerably more processing power available than what was built into a digital camera...and often dedicated graphics processors that were the equal of anything on the desktop. Phone engineers soon figured out how to automate the whole HDR process. The first results were somewhat garish, and lacked the subtleties of an image tone-

camera makers, and many pro-level cameras, have approached the problem, the Sony cameras implement HDR as a logical extension of the Dynamic Range Optimization menu. That means you have the full range of Program mode options, with in-camera HDR layered on top.



HDR is not just for high drama scenes...it can also capture “moods”...as it does in this shot of the marsh under fog.

And Sony does not stop with “Auto” HDR. You have your choice of using a 1 to 6 stop, or up to a 6 EV difference, between the 3 exposures...up to 3 stops either side of normal...over and underexposed. Then, you can also control the normal, or center exposure by using the EV Compensation dial. You can, in effect, slide the “center” or normal exposure up and down the exposure scale by as much as 3 stops either direction, automatically adjusting the corresponding

values for the underexposure and overexposure. Finally, you can choose any one of 7 Creative Styles (processing profiles for the jpeg) and, should you feel the need, adjust the one you choose for Sharpness, Contrast, and Saturation. This gives you an amazing amount of control over how the camera takes and processes the three images that it will use to create your finished HDR.

Finally, the sensor and processing engine of the RX10iv is so fast that you can shoot HDRs well out into the zoom range...hand-held, without a tripod. The camera will detect and adjust for at least some camera motion between frames. One of the issues with early in-camera HDR was that if, say a bird flew into your landscape as you were shooting the 3 images, you will get 3 ghostly images of the bird along the flight-path. If you attempted to shoot a surf-line or moving water of any kind, you got ghosting where the three images did not match. Even foliage moving in a high wind would cause issues in the final image. With the Sony RX10iv ghosting is practically a thing of the past. The algorithms are so intelligent that they can detect and adjust for subject or object motion between frames. It is totally amazing!

As amazing as in-camera HDR on the Sony RX10iv is, every HDR image will still require some tone-mapping in post processing to achieve its most natural and satisfying look. It is generally just a matter of using the shadow and highlight controls to further pump up shadows and tone down highlights, and perhaps the contrast control to add a bit of contrast. Some Dehaze (or Defog) will often add that last bit of drama to an already dramatic sky.

Since I shoot almost all my landscapes using HDR, I keep one of my memory slots on the RX10iv for HDR Landscapes.

My settings are:

1. Focus Area: Wide area (touch as needed to set focus point)
(Function #4)
2. Focus mode: HDR overrides this setting anyway
3. ISO: Auto (Function #5)
4. Metering Mode: Wide area (Function #6)

5. HDR: Auto (Function #8)
6. EV Compensation -0.3 on the EV Comp dial
7. Creative Style: Landscape (Function #9)
8. Grid: Rule of Thirds Grid (Camera 2 menu, screen 7)
9. I save this to Memory along with the Zoom set to 24mm. (as above, Camera 1, screen 3, Memory)
10. Anything not listed is at factory default.

As mentioned in the text, I use the function button to quickly change the HDR setting as needed, generally to 6EV, and the Exposure Compensation dial to shift the whole set of exposures toward underexpose if I need to protect particularly bright highlights.

You might want to go back and read (or reread) the captions under the illustrations in this chapter. They might make more sense now. :)



Chapter 5: Macro



There are photographers who specialize in macro photography. If you are one of them, then there are better cameras for you than the Sony RX10iv...cameras that will accept a dedicated macro lens and extension tubes that will fill the frame with truly tiny objects and subjects. If, on the other hand, you just enjoy getting close and tiny once in while, along with your more general wildlife and nature photography, then the Sony RX10iv is an excellent choice. At 24mm the lens will focus to 2 cm or about half an inch. Unfortunately at 24mm your subject or object will still be fairly small in the frame...it is a wide angle view after all, and it is not always practical to

get that close anyway. You end up with pollen on your lens from errant stamens or you scare the bug away. The Vario-Sonnar on the RX10iv has good macro focus out to about 100mm. This will increase the apparent size of your subject or object in the frame and allow you to work from a more comfortable distance. Because longer focal lengths also have more shallow depth of field it will provide more separation between your subject and the background. Finally, the Vario-Sonnar focuses to 2.36 feet at 600mm equivalent, and provides a convincing macro effect from that distance, with great separation between subject and background. Note that as you zoom from 600 toward 500mm you quickly lose the close focus. This is a case where you might want to frame with your feet...moving until you get your subject in focus and properly framed at full zoom.



Notice the difference in backgrounds between these two shots. The one on the left was taken at 74mm equivalent field of view. The one on the right was taken at 220mm equivalent. Both were taken at the closest focus for that focal length, using Program and letting the camera pick the aperture.

In fact, framing with your feet, and focusing with your feet, or with your whole body, is generally a good idea when shooting macro. Once the zoom is set to the focal length you want to use, it is easier to move in on the subject, until you lose focus...you can see it happen in the Eye Level Viewfinder or on the LCD (I often use the LCD for framing and focus when shooting macros, simply because it is easier). Then back off until the subject is sharp again before you half press the shutter release to establish auto focus. That way you will fill the frame to the full capability of that setting of the zoom. Not happy? Try adjusting the zoom and start over again.



Let me say that the wide angle shot from 2 cm is not always a bad choice. If you want the subject in its setting...a low angle shot of mushrooms or fungi on the forest floor with the forest rising up behind for instance...then the close wide shot might just be the effect you want.

The RX10iv does have a dedicated Macro Mode under Scene Modes. According to the description the mode is designed to produce sharp images of close subjects with a pleasing background, and in my experiments with it, it works very

well. Focus area is set to Wide Area and Continuous, but, again, with the touch you can set a momentary focus point anywhere within the frame as needed. It looks to me like Sony applies a bit of “defocus” to the background during jpeg processing to improve the backgrounds, and still biases the aperture to smaller than wide open for greater depth of field for three dimensional subjects. And, unlike the macro modes on many cameras, it works well at any setting of the zoom, for great flexibility in both working distance and framing.

There are times, when shooting really three dimensional subjects, or when shooting close up and head on on small animals or bugs that are stretched out into the frame, when you might be able to do the Macro Mode one better by using your standard Birds and Wildlife settings, and then employing the



Macro mode on the RX10iv

with your subject at 600mm and 2x Clear Image Zoom (or the equivalent of 1200mm) then you will get surprisingly good macro effects.

Program Shift thumb wheel to change the balance between shutter speed and aperture...setting the aperture smaller and increasing depth of field. However, be aware that apertures more than 2 stops from wide open will degrade the sharpness of the image due to diffraction effects. You won't get much extra depth of field past f5.6 anyway.

Finally, macros are one situation where Clear Image Zoom can produce excellent results. Clear Image Zoom increases the apparent focal length of the RX10iv's zoom by doing an in-camera crop down to either 10 megapixels (1.4x) or 5 megapixels (2x), and then using special algorithms to blow the image back up to full resolution. Clear Image Zoom does best with highly detailed subjects that fill most of the frame. It does not do well with large areas of out of focus background.

Therefore if you can get close enough to fill the frame



Macro mode, in full sun

2x Clear Image Zoom from closest focus, using my dual LED light panels and Multi-frame Noise Reduction from the low light chapter.





Chapter 6: Tips and tricks...

Beyond basic settings and techniques, there are some things I have learned about using the camera in the field.

1) I use a monopod for most of my bird and wildlife photography. The image stabilization in the Sony RX10iv is excellent, and I probably don't need the monopod, but, if nothing else, it takes the weight off my wrists and arms when I am waiting to shoot...and it probably does help a bit with stabilization. I also use it as a walking stick and, occasionally, as a chin rest. :) The trick is, instead of a ball or pan head, I use a small bean-bag on top, so that the camera does not need to be attached to the monopod when I am not using it, and yet I have instant support when I think I do need it. I made the bean-bag out of a small pouch I had laying around, a 3/8s inch Chair (or Table) Leg Socket from the hardware store, and a heavy neoprene plumbing washer. The chair leg socket is threaded for the standard 3/8s inch screw on most quality monopods (quality=aluminum or carbon fiber, 6 section so it fits in your carry-on luggage, comes without a head already attached). Some do come with the 1/4 inch screw showing, but there is generally a 3/8s on the other end of the screw...all you have to do is turn the screw over. (See your monopod

instructions). The chair leg socket also has 4 sharp points which are meant to be pounded into the wooden end of the chair leg, or into the seat of the chair, once you have drilled a hole big enough for



the socket itself. To make the bean-bag, make a hole in one side of the pouch big enough for the chair leg socket to pass through from the outside. Place your neoprene washer (or anything else you might

want to use as a “stiffener” for the bottom of the pouch...a section from a plastic sheet, several layers of milk carton, thin plywood, etc.) on the inside of the pouch bottom (you need a hole in the stiffener the size of the chair leg socket as well) and force the sharp prongs through the fabric and stiffener (if you are



using wood or heavy plastic you might need a hammer for this step). Use a drift or punch to pound the points over from the inside so they hold the chair leg socket in place. (You will definitely need a hammer for this.) I also applied super-glue to the side of the chair leg socket that faces the fabric of the pouch, and to the neoprene washer on the inside, just for extra security. Once the chair leg socket is attached

to the pouch (and any glue is dry), measure out enough barley husks (available at craft stores as a pillow and mattress stuffing) to almost fill the pouch. Put the barley husks into a ziplock plastic bag, and then put the bag into a second ziplock (just so you don't lose barley husks when the first bag inevitably wears out). Put the double bagged barley husks into your pouch and zip the pouch closed. Screw the bean-bag onto the tripod screw on your monopod and you are good to go. My first bean-bag has survived the Amazon, Africa (both Kenya and Kruger), the Galapagos, 8 trips to Honduras, 3 to Costa Rica, 2 to Panama, and a trip to Portugal...not to mention Yellowstone, South Texas, California, Florida, Ohio, Pennsylvania, New Mexico, and Maine.

Feel free to make one for yourself...just don't patent it and try to sell them :) (Someone already has a patent on a very similar, but much more elaborate and expensive, product.)

I should say that I do not use the monopod in autos, safari vehicles, or boats...or when doing casual photography on the street or in buildings...or when I jump out of the tour bus for a quick shot of a record bird...and the image stabilization seems to work just fine without the extra support. My arms do get more tired though.

2) I use a Black Rapid Street sling to carry the Sony RX10iv in the field. It is lightweight, easy to wrap around the camera in its case or bag, and feels secure. It is very easy to use as the camera attaches by its tripod socket, and slides up the strap as you lift it to your eye. Mine has been most of the places my monopod has and is still in good shape. Recommended.

3) When traveling I pack my RX10iv in a heavy duty neoprene lunch bag, either in my rolling underseat bag when flying, or, in a standard daypack in the field. That gives it as much protection as most camera bags without advertising that I am carrying an expensive camera...and is more convenient for accessories (extra batteries and flash cards, etc) as well as rain-gear and water.

4) Several companies make double battery chargers for the RX10 series batteries that use a standard USB charging cable. Way easier to deal with while traveling.

5) I have no problems in mist or light rain with the RX10iv (or my 10iii for that matter). I am careful to wipe any water off the extended zoom before I let it retract. I don't want the zoom to carry water into the works. I do not, however, trust the Sony "weather-sealing" in a downpour.

Chapter 7. Further focus lessons from the field.

I am just back from a month of travel which took me and my trusty RX10iv to southern Portugal, the Dry Tortugas, and the Erie shore of Northern Ohio (for migrant birds). I am still experimenting with focus modes to get the most out of this camera in different situations.

In southern Portugal, as in most places in Europe, it is hard to get close to birds. Many of the birds you see are either small and distant, or big and really distant (as in eagles flying high on the thermals). Also, at least where we were, by mid-morning there is significant heat shimmer over the fields and pastures and seashore, which makes any auto-focus mode problematic. In those conditions, I found, after experimenting with several different modes, that wide-frame tracking auto focus worked as well as anything. I was able, when needed, to pin the initial focus point down by touching the screen, but most of the time the camera locked on to the subject within a few seconds and held long enough for a series of shots. Keeping the camera in wide area tracking also allowed me to swing up for birds overhead without changing any settings.



A very tight crop of a very distant bird in heat haze...even expanded spot flexible focus could not provide reliable focus under these conditions. Great Bustard, one of most sought after European birds: swing up shot of Azure Magpie



In the Dry Tortugas, the birds were somewhat closer, and the light was blindingly bright. Again, I found that, in most cases, wide area tracking auto focus did as well as any other setting, and better than most, at focusing on the bird. It takes some getting used to, as the camera often takes a second to seek and find the most obvious target, but if the target is moving at all, as even in a preening bird, it will lock on. And again, you have the advantage of being able to swing to birds in flight without changing any settings.

wide area tracking auto focus in great light in the Dry Tortugas . Brown Noddies.



Not a perfect shot but impossible without wide area tracking auto focus. Sooty Tern

But then I went to Ohio...the famous Magee Marsh boardwalk for migrating warblers and other singing birds. The birds are close...often less than 10 feet...very small and very active. And they are in dense cover...the trees are beginning to leave out, and there are always twigs and brush in the way. In those conditions, I had to revert to my preferred Expanded Spot Flexible Focus (without any tracking). It was the only way to get on the close,

active, and too often particularly hidden, birds. On occasion I even had to switch to DMF and focus through foreground foliage and twigs.

Expanded flexible spot was needed here with the bird in a confused surround. Female Cape May Warbler

DMF allowed me to focus right through obscuring foreground foliage. Not a great shot but effective. Northern Oriole.



By the way, when using DMF, I do it backwards. I use the focus ring to get close to focus and then half press the shutter release to kick in auto focus. Only on really rare occasions do I half press to enlarge the subject and focus completely manually.

So, the take away is that no one focus mode works best all the time. You have to adapt to the situation. And the Sony RX10iv has the options you need in almost any situation.

Conclusion

As I said at the beginning, this is not meant to be an exhaustive guide to the Sony RX10iv. It is, rather, a summary of how I use the camera for Point and Shoot Nature Photography in the field. I just returned from 16 days in Costa Rica, working from the Caribbean Rainforest in the lowlands, to the cloud forest and Paramo at 8-11,000 feet in the Talamanca Mountains. I used my basic birds and wildlife settings 50% of the time, birds in flight and action settings 10% of the time, HDR landscape 20% of the time, Anti-motion Blur 15% of the time (it is dark in the rainforest), and telephoto macro 5% of the time. Basically I just switched back and forth between my 3 memory settings (birds and wildlife/macro, landscape, and birds in flight/action) and the Anti-motion Blur mode in the Scene Modes. The camera did the job as well as I could hope for in every situation. Would another camera have done as well? Would anything have done better? Honestly, only a full DSLR kit with at least 3 lenses, including the 8 pound 600mm f4, would have clearly outperformed the Sony RX10iv. A micro four-thirds mirrorless kit with three lenses (including at least a 100-300 zoom, and ideally the 100-400mm Leica) might have edged out the Sony RX10iv in some situations...but none of the lenses would have been as bright as the f2.4-f4 of the ZEISS Vario-Sonnar, so any improvement in image quality from the larger sensor might well have been offset by the more difficult exposure in the larger system.

But the bottom line is that I would not have been happy carrying either of the larger, heavier kits with me for 16 days in the field, trudging through heavy rainforest, or climbing steep trails at 9000 feet. The Sony RX10iv is the right size, the right weight, and captures the kind of images I need. Why would I carry anything else?