

I truly feel that no difference will be noticed in image quality when comparing, for instance, Fujichrome 100 and Velvia 50 when shot from a moving, vibrating kite line.

A general rule, one that I believe in, is that a lens is at its sharpest stopped down two stops from wide open. If you have to shoot Velvia 50 with your lens wide open then you are wasting your money on a film that is not going to perform at its potential. I prefer to shoot 100 speed Fujichrome at a shutter speed and *f*-stop combination that takes better advantage of the optical characteristics of the lens.

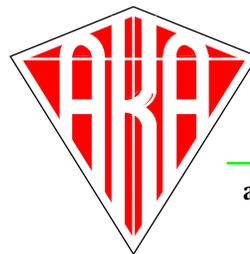
So, what slide film do I use in my grain elevator? Fujichrome 100 is my

choice when I'm out shooting for myself on an average day. I will use Fuji Provia 100 when I am shooting something very special—as when I have an ad agency waiting and watching, and need to have the assurance of uniform color from roll to roll and want the best possible image quality.

Provia is refrigerated at the store and you can rely on it to be fresh and undamaged by heat or improper storage. Fuji Realla 100 is what I use for print film although I don't shoot print film very often anymore. I do always carry a roll of Fujichrome 400 for those gloomy days when it is overcast and windy because I want to shoot at 1/500 second or faster.

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Cape May Light, Cape May, NJ, by Craig Wilson. Ricoh XR10-M



the aerial eye

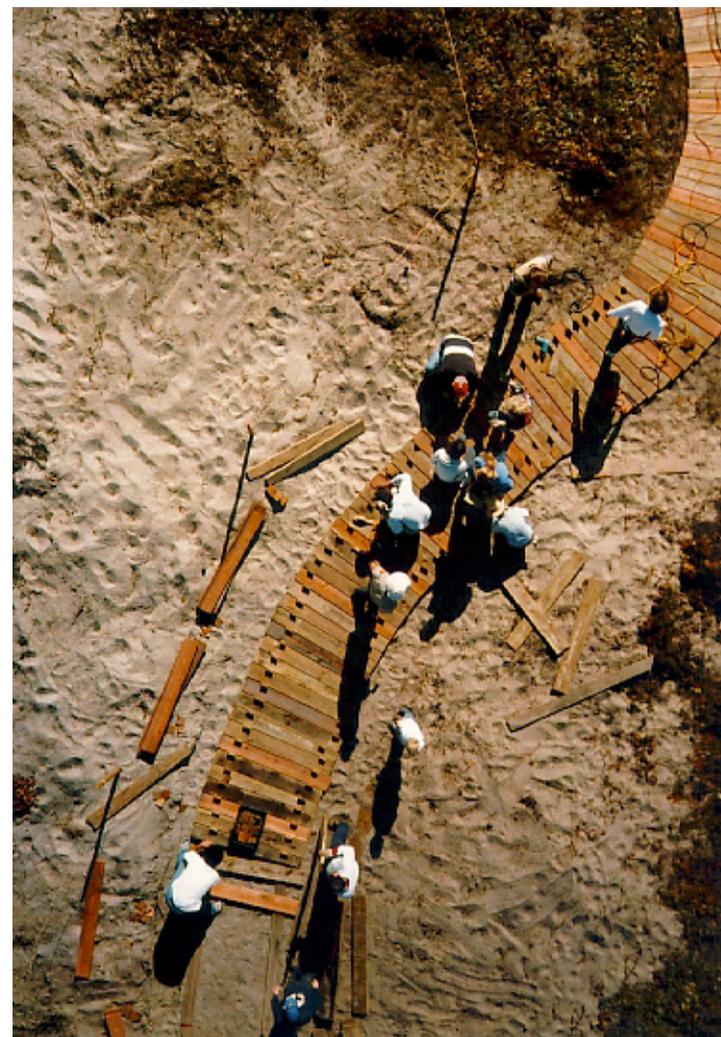
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overseas



*Building the
Boardwalk
by Brooks
Leffler*

CAMERAS & FILM

the aerial eye

This newsletter is produced by the Aerial Photography Committee of the American Kitefliers Association. It is our goal to publish quarterly, in August, November, February, and May.

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urgently needed: your words & pix

Whether you're an AKA member or not, you are encouraged to send us articles, letters, comments, photos and sketches that pertain to kite aerial photography.

Text via email or on 3.5" disk (Mac or DOS HD) in ASCII text format is preferred, but typed text or handwritten letters are welcome too. Likewise, diagrams in Macintosh PICT, TIFF, or EPS formats are best, but pen drawings, preferably on white paper, or just quick sketches on the back of the proverbial napkin will work too. We're most concerned with getting information and don't want to discourage contributors.

Photos may be sent as negatives, prints or slides. We can also read Kodak PhotoCD, or Macintosh disks in EPS, PICT, or TIFF formats. We'll keep the prints unless you direct otherwise, but return all negatives, disks, CDs, and slides—eventually.

Send everything to Brooks Leffler at the address below.

our feature this issue: cameras & film...and video

Although this issue focuses primarily on 35mm still cameras, we recognize the increasing use of video cameras alone or combined with still cameras. The new lightweight video camcorders and micro-video cameras with transmitters could impact kite aerial photography, just as stunt kites impacted kiting a few short decades ago.

Some of us may not embrace this new complication, but we can't simply ignore it.

Fran Gramkowski, of High Fly Kites in New Jersey, has flown an 8mm Sony C7 camcorder for about five years. His cradle, built by Michel Dusariez, includes a rotating mechanism powered by a 9 volt battery that completes a 360 degree revolution every two minutes.

Marv Bowman, of High Sierra Video in Washington state, has flown several camcorders. His favorite is a Sony TR500 that weighs 1 lb. 11 oz., and has an electronic stabilizing system that produces a clearer and less turbulent picture. Marv's cradle weighs 7.5 oz. and is made of brass obtained from a hobby shop. Plans for the future include a motor that will rotate the camera one revolution in two minutes.

Craig Wilson, of Wisconsin, prefers to take most of his pictures with a 35mm still camera unassisted. But on occasion (e.g., when a paying customer wants to watch and decide what

photos are being taken), Craig uses a micro-video camera with his still camera, and transmits to a Sony monitor in his (or his customer's) hand. Craig feels that, with practice, a kite aerial photographer usually knows what his airborne camera is seeing. A micro-video system simply duplicates what he knows and sees from experience.

Randy Bollinger, of St. Louis, Missouri, also uses a micro-video camera with his still camera (see page 16). Randy foresees that the still camera may be replaced entirely by a VCR recording the transmitted image from the video camera, and photographs being made from the recorded film footage.

I believe the unassisted still camera will dominate kite aerial photography for many more decades. Video cameras will increasingly be used, but they won't replace still cameras. Professional photographers at first shunned auto-exposure, auto-focus cameras, but now frequently embrace the convenience of these technologies. Kite aerial photographers will similarly find the use of video cameras a convenience that, on occasion, can help us more consistently produce better photographs. Each of us will decide our own comfort level with the new electronic technologies; and no two of us will be the same.

— Steve Eisenhauer

american kitefliers association aerial photography committee

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basics for beginners

by ANNE ROCK

Most of us already own a camera on the day when we decide "I want to take aerial photos using a kite to lift the camera!" But what features make a camera a decent candidate for kite aerial photography?

The first "feature" won't be found on camera specification lists — it's your willingness to risk the camera, to accept the possibility that the camera be damaged beyond repair.

People use 35mm disposable cameras, point-and-shoot, SLR, and even medium format for kite aerial photography. Choosing a camera is a process of balancing cost, weight, quality of picture, and specifications.

Disposable cameras are low in both cost and weight. Quality of picture isn't high, but often acceptable — good enough to see the possibilities and for the risk involved. If there is a choice of film speed, you're probably better off choosing one with ISO 400, even on bright days. Make a simple rig to hold the camera, with a timer connected to a mechanical arm to take pictures, and you're ready to go. [For one example, see page 18] The main drawback is having to pull the camera down to advance the film and reset the timer after each shot.

Point-and-shoot (p&s) cameras are medium low in weight, typically 6-10 ounces without battery, and vary considerably in cost and features. Automatic focus, exposure, and film ad-

vance are common and desirable.

A few p&s cameras have an intervalometer, a great feature for a simple aerial rig. The intervalometer is an internal timer which takes photos at a predetermined interval until you turn it off or the camera runs out of film. The Rollei Xenar (replaces the Rollei Prego) and its Samsung relatives have an intervalometer with settings of one, ten, and thirty minutes. Pentax has a new camera out with a more advanced intervalometer.

By using an intervalometer camera, letting kite line out to change the height of camera above the ground, and, if possible, walking around with the kite, you can get a variety of photographs without radio control. Occasionally pulling the camera down and changing the direction it's pointing will add more variety.

An automatic camera will be sensitive to the movement created by aerial suspension. Whether you're using a p&s or an SLR, a camera with a wide range of film and shutter speeds is a better candidate for kite aerial photography.

Check the specifications carefully. Many p&s cameras have a top shutter speed of 1/250th of a second; 1/500th is a preferable minimum for kite aerial photography (a faster shutter speed enables the camera to slow down motion and take a sharper picture). Some only use ISO 100 film, and there will



Kelso Dunes, near Baker, California, by Anne Rock. Rollei Prego, Fujicolor 100

probably be days when ISO 400 may be necessary, especially for a p&s with slow shutter speeds.

SLR cameras offer many more features, useful whether the camera is on the ground or in the air; of course, SLRs are heavier and generally cost more. The difference in quality of picture between a good p&s and a moderate quality SLR is not great. Using an SLR you have changeable lenses and filters, a wide range of film and shutter speed, and often many programmable settings.

One programmable setting that I use with the SLR is shutter priority. With this, I'm telling the camera that the shutter speed is more important than the aperture, and I can program the shutter speed I want. If you use shutter or aperture priority settings,

keep in mind that the exposure readings from above may vary considerably from ground level readings of the same subject.

A couple of tips. Using an SLR that has manual and autofocus settings for the lens, I use the manual setting and put a piece of duct tape on the lens to hold the setting on infinity (too many times, the camera never registered 'focused' and would not take a picture if the lens was set on autofocus). I also put a piece of tape over the viewfinder on both SLR and p&s cameras to keep sunlight out, especially if the viewfinder will face the sun. On the SLR sunlight has affected exposure, and it has created orange streaks on p&s photos.

Fly safely, and remember that every ounce counts.

cameras to consider

by *STEVE EISENHAUER*

The cameras listed below are already being used for kite aerial photography, or are models that appear to be well-suited for this purpose. They are light in weight, have automatic film advance and good quality lenses.

You might consider starting out with an inexpensive intervalometer-equipped camera. An intervalometer is a shutter timer which takes pictures at set intervals such as ten seconds, ten minutes, or thirty minutes.

The SLR models have interchangeable lenses that are often of better quality than rangefinder models. The primary advantages of the SLR cameras are their higher shutter speeds (1/2000th sec.), their manual and shutter-priority exposure modes, and their resultant ability to use lower-speed, finer grained films (ISO 50 to 100) that should result in better quality enlargements.

This list is definitely not all-inclusive. A \$2,000.00 Leica SLR camera and a \$5.00 yard-sale rangefinder camera are both capable of producing great photos when suspended from a kite. The list simply serves as a reference for anyone considering the purchase of a new camera for kite aerial photography.

Of the cameras with intervalometers, the Samsung is the cheapest (about \$80.00). The Ricoh Shotmaster is available in many different models

and costs; buy one without the zoom lens and save weight and money. The Ricoh Shotmaster is probably the most commonly used camera for kite aerial photography. The Rollei Prego is used by two AKA KAPers: Anne Rock and Rodney Thomsen. It has a 35mm f3.5 lens, a 1/500th sec. shutter speed, and 7.5 oz weight

The rangefinder Yashica T4 has a street price of about \$120.00, but features an excellent quality 35mm Zeiss lens and a top shutter speed of 1/700th sec. The Nikon f2.8 One-Touch is recommended by Brooks Leffler; he bought his used for \$60.00.

The list of SLR cameras includes the Sigma SA-300: it is inexpensive (about \$240.00 for the body), lightweight, and has auto-bracketing. This last feature makes it possible to bracket exposures without bringing the camera down: a feature found only on the more expensive camera models. Sigma also makes a wide range of high-quality, inexpensive lenses (e.g. a 28mm f1.8 for \$180.00).

THE ULTRALIGHT SLRS.

A kite aerial photographer who wants consistently-professional results needs a camera with a professional-quality lens, a high-speed shutter, and manual and shutter-priority exposure controls. It also helps if the camera is lightweight and has interchangeable lenses. The Canon Rebel X and Minol-

ta 2xi Maxxum are two cameras that have all these characteristics. I have used both of them for aerial photography; here's a comparison [see table, next page].

The Canon camera is more expensive, but Canon equipment is considered by some photographers to meet higher standards than Minolta. The Canon is also a little lighter and has a few more features. These extra features will probably determine whether you prefer the Canon or the Minolta.

You can lock the Canon's lens on the infinity setting by flicking the manual-focus switch on the lens barrel, and then using tape to keep the lens on infinity. The Minolta also has a manual-focus switch mounted on the camera body that must be reset each time you turn on the camera. You can't tape the Minolta lens on infinity because the camera starts in the autofocus mode and will try to adjust itself when turned on.

Locking the lens on infinity is important. It's one less thing to check before sending the camera aloft. It's easy to bump the camera's lens barrel off infinity when you're preparing it for flight. And some lenses (like my Minolta 35mm f2) will drift from the infinity

setting when they experience turbulence in flight. I now put a thick rubber band on each of my Minolta lenses, and position this so it keeps the lens on the infinity setting after the camera is turned on. One roll of out-of-focus pictures will convince you of the importance of locking the focus.

When set in the manual or shutter-priority exposure mode, the Canon camera will take continuous one-per-second pictures as long as the shutter button is held down. The Minolta will take only one picture; then the button must be released and pushed again. Minolta's single-shot shutter makes it easier to count the pictures you are taking. With the Canon, you must release your remote control lever quickly, or you may take more pictures than desired.

The Canon camera has a connection for a remote shutter release, which adds about 1.5 oz. of weight after mounting on the cradle. For some KAPers it's an unneeded complication; they position a servo to push the shutter button directly rather than push the remote release. But other KAPers feel the servo arm pushing directly on the

• *continued on next page*

cameras for aerial photography

Rangefinder	RF+intervalometer	Single Lens Reflex
Yashica T4	Samsung AF Slim	Canon EOS Rebel X
Nikon One-Touch	Ricoh Shotmaster	Minolta Maxxum 2xi
	Rollei Prego	Sigma SA-300

comparing the slrs

	Canon Rebel X	Minolta 2xi
Weight (w/o lens & batteries):	11.3 oz.(315 gr.)	13.6 oz.(385 gr.)
50mm lens weight:	(f/1.8) 130 gr.	(f/1.7) 170 gr.
28mm f/2.8 lens weight:	185 gr.	185 gr.
35mm f/2.0 lens weight:	210 gr.	240 gr.
Infinity lens lock:	Yes	No
Shutter priority exp.:	Yes	Yes
Manual exposure:	Yes	Yes
Exposure compensation:	Yes	Yes
Remote shutter release:	Yes	No
Single-shot shutter:	No	Yes
Continuous-shot shutter:	Yes	No
Integrated lens hood:	No	Yes

cameras • continued from page 7

shutter button jogs the camera body and causes movement that can blur pictures. The Canon camera allows you to choose either shutter release method.

In aerial field tests, I've used the Minolta 2xi for about 70 rolls of film and the recently-purchased Canon X for 5 rolls. I'm undecided which is the best camera for kite aerial photography. If pressed, I'd give a slight edge to the Canon because of its lighter body, lighter 50mm and 35mm lenses, and infinity lens lock capability. I just wish it had a single-shot shutter at all program settings like the Minolta.

It's important to note that neither of these cameras (like many electronic

cameras) will be produced by their manufacturers for many years. The Minolta 2xi is no longer being manufactured, but is still sold by most camera stores. It has been replaced by the Minolta 400si, which is just as lightweight as the 2xi, has a few more features and a higher price. Likewise, the Canon Rebel X will probably be updated soon.

Camera manufacturers seem to be leapfrogging over one another—electronic cameras are like microcomputers changing with each new microchip advancement. Luckily, intense competition is keeping prices down, and camera weights seem also to be decreasing.

hot glue, scrap spruce, and cardboard

by DAVID VAN ZANDT, 1119 NW 60th Street, Seattle, WA 98107-2919

The first photo I took from a kite-lofted camera was of the Columbia River Gorge in 1974. I used a 1950's-vintage Kodak Hawkeye that was kicking around my parent's basement. I bought a small six-minute timer used to dethermalize model gliders, glued and screwed it to the camera body, epoxied a 2-1/2 foot wind vane and several pieces of wood to various parts of the camera in a way to use a rubber band to set the thing off.

It was the lightest, cheapest, most expedient way for me to take aerial photographs and it appealed to my sense of getting the job done with the least amount of effort. True, the photos I took were not particularly sharp, and I couldn't aim the camera at all, but I got a tremendous satisfaction looking at my photos taken from the perspective only height could give.

After a 20-year hiatus from kiting, I recently got the aerial photography bug again. But since my budget doesn't allow for radio control gear or self-winding cameras, I grabbed a hot-glue gun and one of those disposable panoramic cameras.

Before I was able to visualize a complete design for my camera system I read many postings on the Internet newsgroup "rec.kites" about aerial photography rigs. I needed a better way to suspend and aim the camera. I had the good fortune to contact our own Brooks Leffler via Internet e-mail,

who shared with me the Picavet self-leveling suspension system.

At last I had all the pieces to the puzzle! From the old Hawkeye, long since gone, I had saved the most critical piece of hardware, the dethermalizer timer, which has a wire arm that springs open when the timer reaches zero. I laid it, the camera, my glue gun, several pieces of scrap spruce sticks, some super-glue, a roll of strapping tape, packing tape, a paper clip, some sheet aluminum, a chunk of styrofoam, and a bit of 1/32 inch birch plywood on my bench.

Over the top of the camera I hinged with strapping tape a strip of spruce. I glued a knob of wood on the strip at the shutter button to reach down to make firm contact when the timer tripped. This strip extended over the edge to accept a rubber band to pull it down. I hot-glued another strip of wood to the bottom of the camera to allow a grip for the other end of the rubber band.

The timer was enclosed in a small styrofoam-and-plywood box and hot-glued to the shutter side of the camera. A pillar with a wire arm placed about an inch above the top surface of the camera was hot-glued next to the timer. A string was attached to the timer, looped up and over the wire arm and back down to the shutter re-

as long as it's light, use any SLR

by DAVID MCCUISTION • 824 W. Second, El Dorado, KS 67042

I prefer the image control a single lens reflex (SLR) camera provides. Primarily, SLRs have superior optics compared to point-and-shoot cameras. As long as the camera is relatively lightweight it makes little difference to me who manufactured the camera.

Image quality is controlled by the lens. My Sigma 28 mm *f*2.8 wide-angle lens has benefits of great depth of field, more coverage of the subject (without having to fly as high), plus the wide-angle lens' distortion of perspective can accentuate the subject.

My Ricoh XR-10M 35mm camera has these features which are important to the aerial photographer: automatic exposure control w/exposure compensation, manual override, automatic film advance, R-K mount which accepts Pentax lenses, and an electrical remote shutter release.

The camera body w/o batteries weighs 18 ounces. The rarely-found electrical remote shutter release allows the camera cradle builder to locate the R/C receiver/shutter interface where it may be more convenient; a servo directly actuating the shutter release button is not the most aesthetic placement.

The Ricoh appears to be a rugged, reliable camera that is unencumbered by autofocus. To prevent out-of-focus pictures, tape the focusing ring at infinity. Before lofting the camera I al-

ways attach a lens hood, and for bright sun, I program one full *f*-stop less of exposure compensation; this allows for ground reflection.

An *f*2.8 aperture lens allows use of films rated as low as ISO 25. I use Kodak ISO 25 and 100 and Fuji ISO 100 films; Fuji appears to have the edge on color accuracy.

STAY PORTABLE

Many times the good photo opportunities move, or launching the camera in your chosen location is not possible, so I have devised a highly portable way of working.

Arriving at location I first lay a tarp on the ground held down with one of my storage containers; on this surface

• *continued on next page*

The portable McCuiston



from escort to prego to 1-channel rig

by RODNEY THOMSEN • 3656 Old Arcata Road, #25, Eureka, CA 95503

• *continued from page 10*

I lay out the equipment. Two earth anchors are grounded side-by-side to hold the cord winder. After launching the kite to approximately 100 to 150 feet the line is anchored and the pendulum is attached about 15 feet from the anchor — high enough to hold the camera, which is attached next, out of harm's way.

I clip a storage bag to my belt loop, filled with extra earth anchors, rope, and a carabiner; snap on my separate pocketed belt that holds the R/C transmitter, range finder, and note pad; wrap a seat-belt body anchor around my legs, just below my hips; attach the cord winder to the belt, and off I go.

With this system both hands are free to set additional earth anchors, use my range finder or binoculars, climb fences, and snap the picture.

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in the summer issue: KITES, LINE, & WINDERS

What do you use?

*Send us closeup photos of
your kites in flight,
and/or your comments,
anecdotes, & analysis.*

COPY DEADLINE APRIL 1

The camera I am presently using is a Minolta Freedom Escort with data back. The primary reason for selecting the Minolta was its light weight of 185 grams followed by automatic film transport, quality *f*3.5 lens and, a five-minute shutdown time, which allows ample time to loft the rig to the desired height.

After reading Ann Rock's piece [ae 1.1, p. 23] about her lightweight rig, I was so impressed with the intervalometer feature that I bought a Rollei Pre-go AF with data back from Smile Camera in N.Y. and am presently building a frame for it.

For my next project I have in mind an R/C rig using one servo. The horizontal axis would be set before launch (usually I like about a 10-degree down angle). Once airborne, pushing the stick in one direction would trip the shutter, while each push in the other direction would actuate a pawl and ratchet which would pan the camera 15 degrees. That way, using 24-exposure film you could pan through 360 degrees in a matter of minutes.

I use color print film by Fuji, Kodak, and Konica with a preference for Fuji 400, but often use Konica 200 & 400 because it's easier to find in 12 exposure rolls which I use most of the time. I bought 10 rolls of 3M on sale at 99¢ per roll but don't care for the color rendition nearly as well as the others.

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clockwise from right:

- *Tuckahoe River, New Jersey*
by Steve Eisenhauer
- *Shilo Hotel, Seaside, Oregon*
by Rodney Thomsen
- *Chris-Craft on the Rocks,
Pacific Grove, California*
by Brooks Leffler
- *Sand Island, Mississippi River,
near St. Louis, Missouri*
by Randy Bollinger
- *Butler County Community College,
El Dorado, Kansas*
by David McCuiston

aerial gallery



film for aerial photography

by *STEVE EISENHAUER*

Kite aerial photographers use four types of film: color print (negative), color slide (transparency), black & white print, and infrared. With the exception of infrared film, each film type is available in a wide range of speeds (represented by ISO or ASA number). In general, low speed films have finer grain and more accurate and vibrant color rendition. High speed films enable you to use higher shutter speeds and smaller aperture settings. Film quality varies with different manufacturers. One manufacturer may produce different films of the same speed and type (Kodak has four slide films with an ISO rating near 100). Each film type has advantages and disadvantages:

COLOR PRINT

The biggest advantage of color print film is its latitude: exposure settings are not critical; often you can be two stops (shutter speeds or aperture settings) under or overexposed and the picture will still be acceptable. This latitude reduces contrast a little: an aerial photo with sunlit and lightly-shaded areas

may be acceptably-exposed in both areas. Color print film reduces the effect of a camera's exposure meter misled by unusual light conditions.

Other advantages of color print film are its availability, its purchase price, its development time, and the lower cost for prints and enlargements compared to slide film. The grain and color rendition of print film has improved significantly in the past two decades. This quality improvement is particularly evident in the high speed films; films with an ISO rating of 400 now produce results approaching the quality of ISO 100 films.

One disadvantage is that its overall cost (including development) often exceeds that for color slide film. Another disadvantage is that color negatives from print films lose quality when converted to color slides. It's also easier to convert slides, rather than prints, to the video format.

One last disadvantage of color print film is that many publications use color slides to produce their published prints, and request slides when they review photos for possible publication. Slide film is often preferred over print film for professional work. However, publishers seem to be more willing to use print film in recent years. With the improved quality of print films this trend is expected to continue.

COLOR SLIDE

National Geographic magazines that are decades old consist entirely of photographs using Kodachrome 25, 64 and Ektachrome 400 slide film. These films are still widely used today, although Japanese films are increasingly being used by professionals. Fuji Velvia 50 and Sensia 100, with their vibrant color rendition, are now commonly used by photographers. Kodak's new Ektachrome Elite 100 attempts to match the brilliant colors of these Fuji films.

The purchase and processing cost of slide film should be cheaper than print film. However, this cost savings may often be realized only if you purchase film and processing mailers from mail order supply stores. Local photo stores frequently charge as much to purchase and process slide film as they do print films.

Most processors say they can make prints from slides (although it usually costs twice as much), but the results can be disastrous. I live in New Jersey but send my slides 2000 miles away to Colorado whenever I need prints. Always use a slide processor who specializes in slide films.

Most slide film has an exposure latitude of less than one stop under- or overexposure. This narrow latitude requires exposure settings to be more accurate than for print films. Many professional photographers bracket

exposures, taking photos at the indicated setting and at one stop over and under the indicated setting. Most kite aerial photographers cannot easily bracket, as automatic cameras are often not manually adjustable. Cameras that are adjustable must be reeled down for resetting, and then a series of photos taken at the new settings.

In my own experience of using slide films



almost exclusively for aerial photography, my camera's automatic exposure gives me acceptable settings about 80 percent of the time. For difficult light conditions, I use a hand-held incident light meter and manually set my camera before each flight.

BLACK AND WHITE

Few people use black and white film anymore. But if your photographs are being reproduced in a newspaper,

• *continued on page 18*

using aerial micro-video

by **RANDY BOLLINGER**, 249 Gladys Avenue, Ferguson, MO 63135

To some of us, the use of a micro-video camera may be too cumbersome, or too much to add to an already complicated AP system.

In the future its use might be an absolute necessity. It is a fact, our stratospheric ozone layer is depleting, with increased ultraviolet radiation the result. For now, its only harm is from prolonged exposure.

We are the only aerial photographers that find the need to look up; the use of a micro-video camera and monitor can reduce the time we spend doing that.

The micro-video camera is not needed for shooting anything above 150 - 200 ft. The higher the altitude, the wider the field of view; the lower the altitude, the more need there is for precise framing.

I like to be conservative with film, making every low altitude shot precise. In photography, good framing is an art, and it is what we all strive for in AP, no matter if it is with servo control, fixed position, or by pure chance.

VIDEO APPROACHES

There are three ways a micro-video camera can be mounted. The first is the parallel mount. The video camera is mounted off to the side, above or below the still camera.

The key to proper mounting is (1) not to interfere with other moving parts, (2) keeping the system in bal-

ance, by not binding servos and running batteries down, (3) taking all steps to reduce weight.

The video camera in the parallel mount is what I used for the photos in the December 1993 issue of KAPWA NEWS. It has a field of view approximate to a 35mm lens.

The second approach to mounting is the direct view or tandem mount. The video camera is mounted so that it looks directly through the eyepiece of the still camera.

The third approach is to use the micro-video camera by itself. With this method, you can watch the monitor and use a portable VCR and record the view. Later the VCR tape can be played linked to a computer to stop frames and burn off copies at random, thereby eliminating the need for camera and film. I can't elaborate on this approach; it is hearsay by friends in the computer world. I have my doubts that the computer imaging can match the quality of camera, film, and print; however, this is an option and should not be overlooked.

In all the methods there are three main components: (1) the micro-video camera, (2) the video sender, (3) the monitor. A VCR will also be necessary with the third method above.

(1) the micro-video camera.

Color or black-and-white? B/W will be less costly, and will serve fine for

the first two methods. The B/W camera will operate on 7-16vdc continual power. Flying with power leads up to the camera is too dangerous, so I use a 9vdc battery, which lasts for about 45 minutes.

The video camera can be of the enclosed or open type. The open type is a circuit board with lens only. The open type will cost less than the enclosed type, but you will need to box mount it.

There are two power lead connections and one coax lead to be made to the video sending unit.

(2) The Video Sending Unit.

The sender takes in what the micro camera sees and radios the signal to the monitor. I mounted my sending unit on the pendulum arm, with the antenna extended upward.

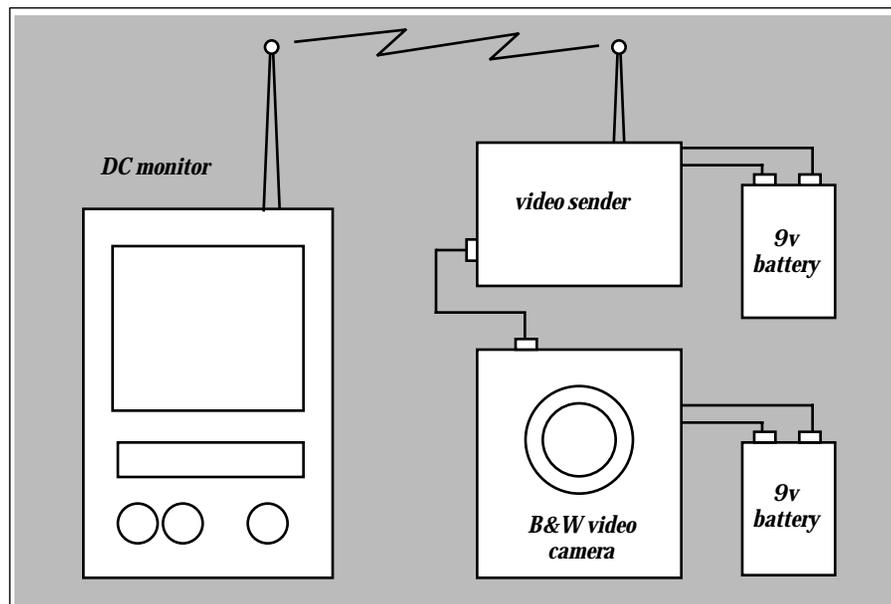
Video senders are priced at \$45-\$65 and can be found at places like Radio Shack or tv stores. They can be powered by 110vac or 9vdc. Their range is about 175-250 ft outdoors; reception will drop off the higher the altitude.

Most senders come mounted in a metal box. To reduce weight, I gutted mine and installed it in a plastic electronics box.

(3) The Monitor

This needs to be mobile and of DC power. We now have at our disposal monitors in the size of beepers, wrist-watch monitors, and even monitors that mount on headsets for joggers. All are reasonably priced.

My cradle with video & camera weighs in at just over 3.5 lb; with a Nikon Lite-Touch camera that can be reduced to approximately 2.5 lb. • æ



film • continued from page 15

newsletter or other black and white publication, you should use black and white film. It produces better prints than color film converted to black and white.

Black and white photography is a lost art to most photographers. There are no colors to make your picture effective; you have to look for contrast. If you find the right contrasts, your black and white photos can have just as much impact as any color photos.

Since black and white film is infrequently used by nonprofessionals, purchasing and processing it can be a problem. Like slide film, many processors say they can process and print black and white film but, in truth, they often lack experience. Results can be very disappointing, so look for a processor who does professional black and white work. It may cost you more than color processing but often you have no choice, unless you plan to develop and print the film yourself.

INFRARED

I produce slide shows about environmental issues. In these shows I utilize kite aerial photos, but also purchase infrared photos taken from satellites. Although the colors produced by infrared film are distorted, the photos are usually crystal clear. Infrared film penetrates haze and mist much better than other films. Its main use today is for aerial survey work. Kite aerial photographers should know how to use it.

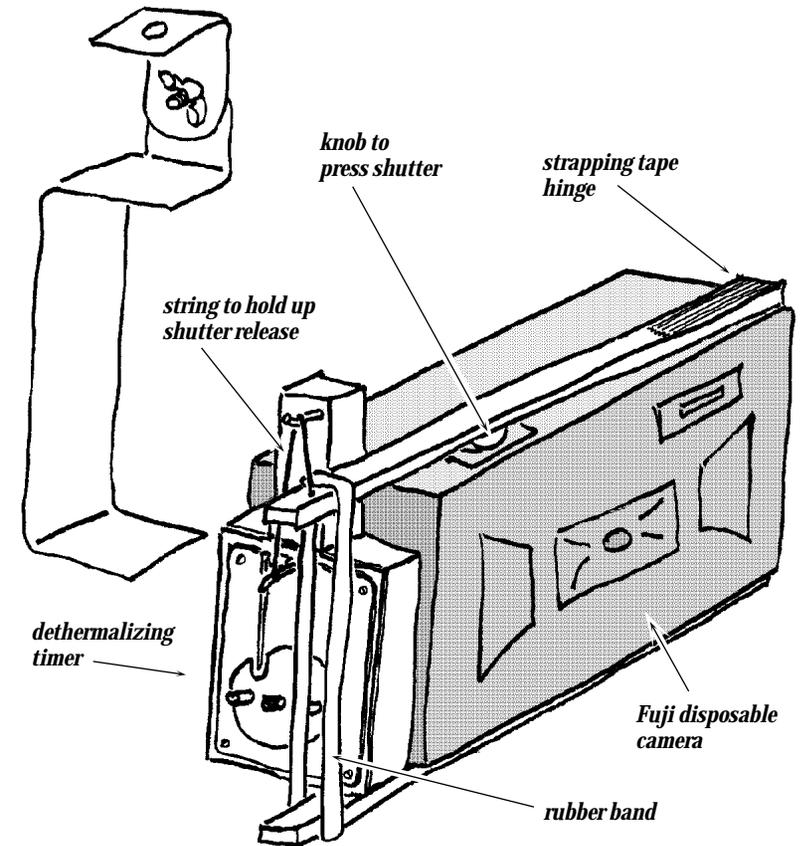
If you use infrared film, an SLR camera is a big help. Infrared film requires

the use of filters that alter exposure readings. With black and white infrared film, autofocus systems must be turned off and the lens adjusted manually to an infrared focus setting (see your camera's manual). Most color infrared films use the camera's normal focus settings.

The recommended ISO setting for Kodak Infrared Ektachrome (IRE) film is 100, but bracketing one or two stops over- and underexposure is highly recommended. Most modern cameras that automatically read film exposure (DX) codes will set themselves at ISO 100 if the code isn't imprinted. Infrared film doesn't have a DX code, so most cameras will automatically select the correct setting for Infrared Ektachrome.

Infrared film requires special handling: load and unload it in total darkness, and process it only at laboratories familiar with its special requirements. Expect to pay more: a 36-exposure roll of IRE costs about \$15.00, and \$20.00 more to process into slides.

I recently shot my first roll of IRE using a #12 yellow filter. The film's haze-penetrating ability was impressive, but the color distortions were confusing. I plan to use a few more rolls for aerial views of wetland areas, to see if it's helpful in identifying different plant species. I just hope I don't get hooked on it; I might have to get a second job to pay the \$35.00 per roll purchase/process costs.

*hot glue • continued from page 9*

release. This string held the shutter release up while the rubber band held it in tension waiting for the timer to go off.

I used a jeweler's saw to cut some 1/16-inch aluminum sheet for the hinged, rotating camera platform. I hot-glued and taped the camera to it. This platform allowed me to aim the lens about 30 degrees above and below the horizon and a full 360 degrees around the center of the Picavet suspension arm.

This whole system, including the cradle, weighed in at just over 8 ounces. I was able to remove the hardware very easily with a table knife before sending the camera off to the processor. The next system I build will have the timer built into the platform to allow for the camera to simply strap onto it, and to allow the platform to have a greater degree of aim-ability, though I expect that the weight will increase by an ounce or so.

aerialletters

AKA TOO RESTRICTIVE?

It's good to again have a forum to showcase our work, a place where we can exchange ideas and information. The computer generated graphics are also a welcome addition. However, there are a couple of points I would like to make.

My understanding is that under your submissions policy only input from AKA members will be considered. If such is the case, given the small number of AKA members involved in kite aerial photography, it would seem to me that we would be ignoring the vast store of knowledge held by other worldwide adherents of the hobby who are not AKA members.

Another point I would like to make is that I feel that the aims and objectives of kite aerial photography would be better served as an independent organization rather than merely being a committee of the AKA. As a separate entity we would enjoy the distinct advantage of not being subjected to the whims of the parent organization....

Rodney Thomsen
Eureka, CA

• To get **the aerial eye** off the ground quickly, it seemed simplest to do it within the AKA organization — that was where the energy was. As to “the whims of the parent organization,” so far the Board has been fully supportive. If their whims get too whimsy, we'll split!

We welcome submissions from all interested parties, without regard to AKA membership. We have no intention of “ignoring the vast storehouse”, though opening it is proving much more difficult than it should be.

Most of those “worldwide adherents” were KAPWA members, but Michel Dusariez has not provided us with the KAPWA membership list. Michel did mention us in his latest letter to former KAPWA members, which resulted in a few inquiries. We thank him for this recognition, and hope that someday he will share his ~~list~~

THREE CHEERS FOR LO-TECH

Last weekend I finally got together with Peter Berryman.... His rig is really a kick [**ae** 1.1, p. 9] ... worthy of every bit of exposure that **the aerial eye** gave it. I think it is critical that our readers get the message...that you need not have a complicated, expensive rig to be successful. A simple and creative combination of shoe strings, Tupperware®, wire, dowels, tape, and rubber bands has just as much potential and loads more appeal than the servo-laden techno-geek version.

Craig Wilson
Madison, WI

NO MORE FEAR

I have for years been interested [in KAP], but in too much fear to try. Little by little I took risk. Using my Pen-



tax P-3 on self-timer...did not give me enough time to pull kite up or camera to stop swaying. Got lots of beach sand & parking lots.... At the [AKA] convention this year I had put together a Canon AE-1...and radio control out of model car...on Greens cradle. Used same Feather 11-ft delta ...lifted up about 20-25 ft. Results enclosed [see pic].

Eddie Webb
Danvers, MA

EYES ACROSS THE WATER

Payment enclosed...I would be particularly interested in receiving the first issue....I hope your newsletter is a great success; it is a perfect way to bring together even the simplest of ideas for others to advance to the next stage of Aerial Photography Evolution.

Rob Green
Newbury, Berks, UK

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book review

by STEVE EISENHAUER

Aerial Photography by Harvey Lloyd.
Watson Guptill Publications, 1990.
1515 Broadway, New York, NY 10036. \$22.50

Kite aerial photographers measure their skill by the quality of their photographs. After they learn how to keep a camera aloft, they must learn more about lenses, filters, films, cameras, and the techniques of aerial photography. *Aerial Photography* by Harvey Lloyd is 144 pages of advice and remarkable aerial photographs. Although all were taken from aircraft, this is a worthy reference manual for KAP. More importantly, its pictures are examples of the quality kite aerial photographers can strive to attain.

Most of the book's photographs were taken from elevations below 1000 feet; some photographs were taken from a helicopter hovering 10 to 30 feet above the ocean's surface. Lloyd spends thousands of dollars for helicopter and plane rentals. A skilled KAPer could replicate many of these photographs at a small fraction of this cost.

An interesting aspect of Lloyd's photographs is that many do not have level horizons. Indeed, Lloyd says, "I like images that are slightly askew yet always on a solid foundation." As the saying goes, an artist must first learn the rules of his craft before he knows how to break them. Similarly, a kite aerial photographer first learns how to get a level horizon, then recognizes that in some images a crooked horizon is a better composi-

Lloyd does not mention kite aerial photography, and indeed, some of his equipment is not pertinent (e.g., a heavy gyro-stabilizer to minimize vibrations). But much of his discussion of photo equipment is relative to our craft. In particular, his emphasis on bracketing exposures (about one stop over & under) represents the next advancement for many KAPers. Some SLR cameras, like the Canon EOS Elan, have auto-bracketing capabilities: push the shutter button once and get three exposures at predetermined settings of over- and underexposure.

Lloyd's advice on marketing, on model releases, and on copyright law is valuable. But his treatment of the artistic aspects of AP is the most fascinating part of the book. Two chapters—over 40 pages—deal with color, mood and composition on location. One small section, titled "Zen and Aerial Composition", speaks directly to the soul of every dedicated KAPer.

If you're just starting out in KAP, this book might be a little overwhelming. I read it two years ago, and thought its techniques and information were pertinent mostly to aircraft-elevated aerial photographers. After a couple thousand kite aerial photographs, my recent rereading of this book opened my eyes and stirred my spirit. I highly recommend it for advanced kite aerial photographers.

optical delusion or...chrome chrome on the range

by CRAIG WILSON

All this talk from various *Eye Liners* about what film to use has probably clouded the issue. You are looking for resolution to this filmy topic, and want some well-focused answers. The type of film you use in your "grain elevator" should depend on what you are going to use the images you are producing for.

There is no magical film that will serve all the purposes that a photographer would want. You need to decide what you want and then choose a film to best meet those needs.

If I am shooting something that I hope to use for publication purposes or to show many people, then I generally will use a slide film. I like how easy slides are to store, organize, and find when I want to show them. The negative side of slide film is that is rather expensive to make quality prints to display or frame. If the subject or client is looking to make prints from the images, or I want to use them in my portfolio then I will shoot the scene using print film.

A man that I consider a very good photographer once told me that I should pick a film that I like and stick with it. To ensure uniform results, I should always buy it in the same size rolls. If you always use the same film you will better understand its structure, limitations, and qualities, and thereby make more correct choices in



Wildwood Off-Season by Craig Wilson

using the film. It is more desirable to get consistently good, predictable results rather than an occasional great success.

Many professional photographers will say that the only film to use is Kodachrome 64 or Fuji Velvia 50. I disagree. All films have made great advances in the last several years and the differences between them is no longer as great as it once was. In my opinion films such as Velvia 50 or Kodachrome 64 need to be shot from a tripod-mounted camera with very precise metering to realize their superior capabilities.