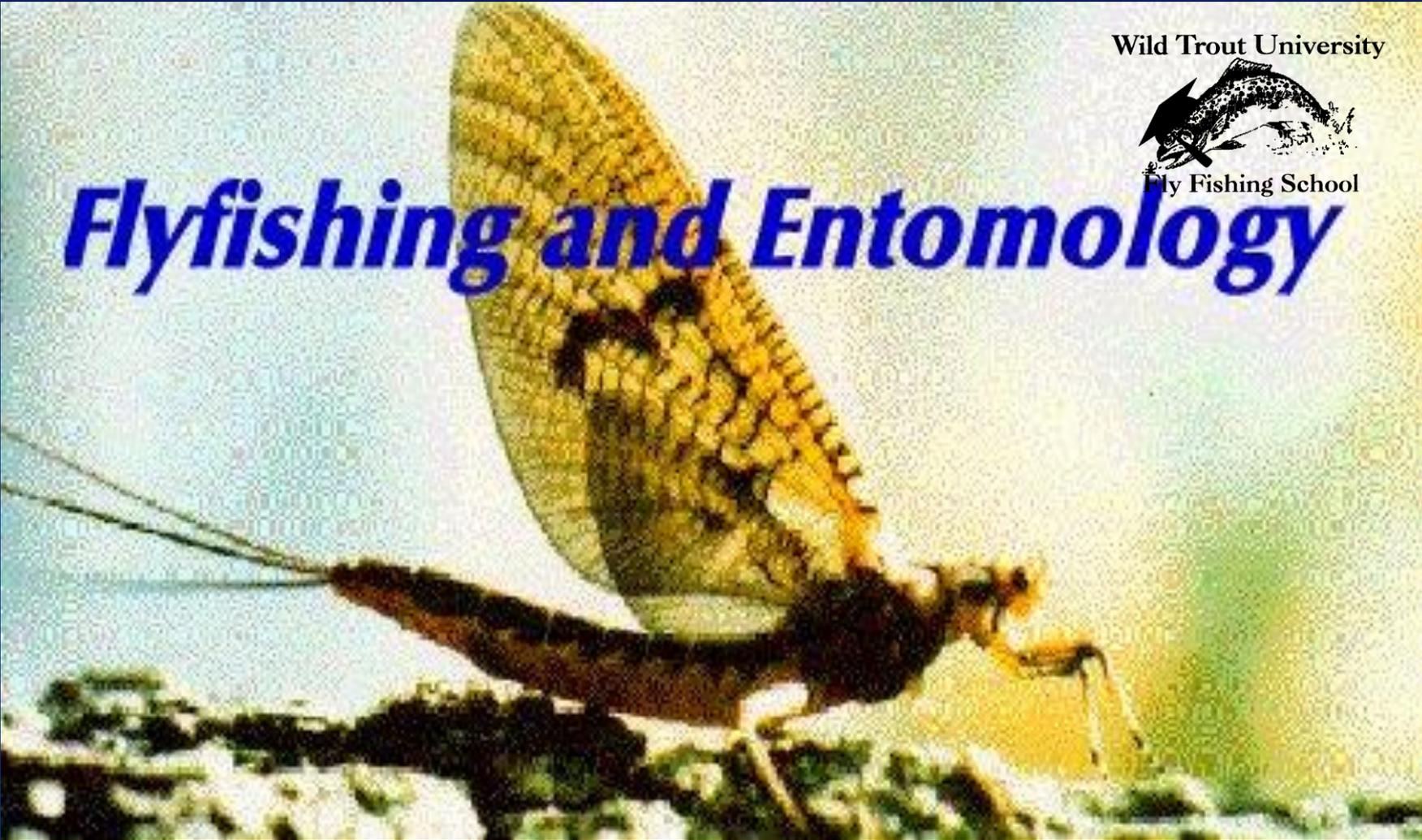


Wild Trout University



Fly Fishing School

# ***Flyfishing and Entomology***



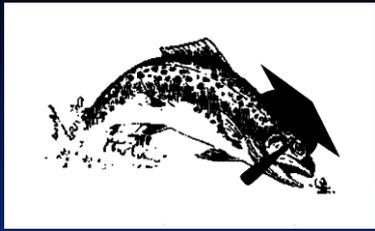
Wild Trout University Fly-fishing School's  
Fly-fishing Guide to

# **BASIC TROUT STREAM ENTOMOLOGY**

or

*What Do Trout Really Eat?*

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Presented by  
**WILL DASKAL**

- Founder and Head Instructor at *Wild Trout University Fly Fishing School*
- Former instructor at *Al Caucci Fly Fishing Schools* Delaware River Club on the West Branch of the Delaware at the River
- Life Member of *Trout Unlimited*
- *Secretary, Brodhead Chapter of Trout Unlimited*



# About Your Instructor: Will Daskal...

- Began fly-fishing in 1952
- Began fly-tying in 1956
- Learned to fly-fish on the Beaverkill, Little Beaverkill, Neversink, Willoweemoc, East Branch and other Catskill streams
- Started teaching others to fly-fish in 1959
- Started teaching at Al Caucci's Fly-fishing Schools at the Delaware River Club in the early 1990's
- Opened up *Wild Trout University Fly-fishing School* in 1995
- LOVES TO FLY-FISH!

**Thanks to the dedicated individuals who gave unselfishly to me over the years to further my knowledge & proficiency as a fly-fisher, fly-tier & fly-fishing instructor:**

- **Al Caucci**
- **Jim Charron**
- **Ralph Graves**
- **Greg Hoover**
- **Poul Jorgenson**
- **Eric Leiser**
- **Nick Lyons**
- **Mickey Maguire**
- **Bob Nastasi**
- **Ernie Schwiebert**
- **Dick Talleur**

Let's face it...

# TROUT EAT INSECTS!



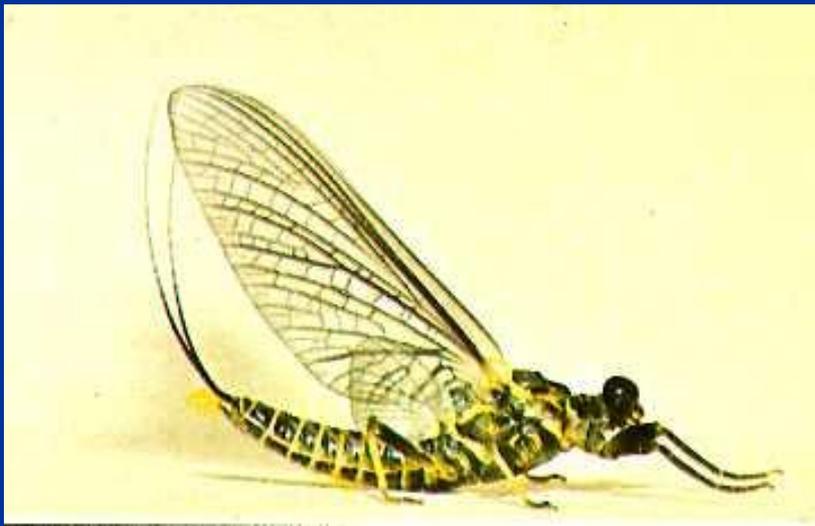
Entomology (from Greek ἔντομος, *entomos*, "that which is cut in pieces or segmented", hence "insect"; and -λογία, -logia) is the scientific study of insects.

## Entomology is...

- The study of insects
- For our purposes, it will focus *mainly* on those insects that live in the trout's aquatic world and upon which they feed
- The key to successful fly-fishing for trout lies in our ability to *match the hatch!*

# An entomological approach to fly-fishing for trout...

- focuses on the types of insects upon which trout feed, and
- demands a knowledge of the best fly pattern to replicate how these insects live and behave.



**Entomology helps you identify the basic insects that live in a trout stream and upon which the trout most often feed.**

- **Mayflies**
- **Caddis flies**
- **Stoneflies**
- **Other insects**

## **Important:**

**If we can develop a good sense of what forms of life inhabit the waters where the trout feed, we can develop a systematic and effective means of catching them!**

# Some Typical Trout Stream Foods



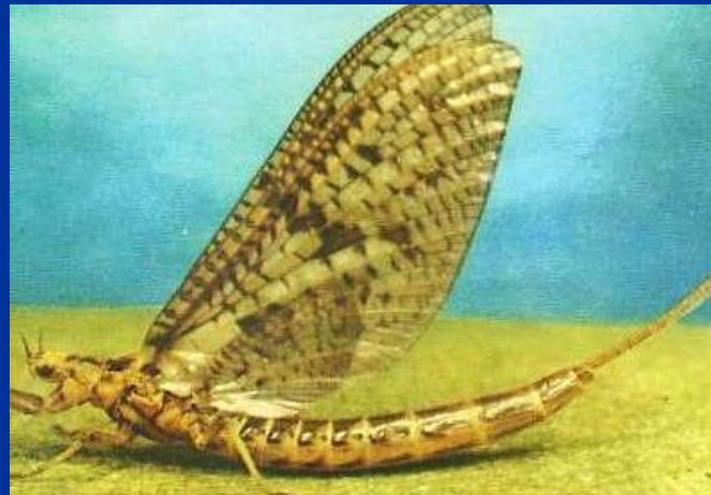
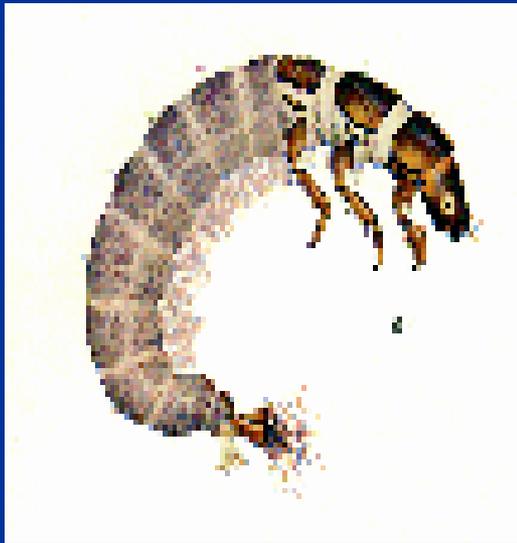
# Remember...

## Fly Fishing for Trout

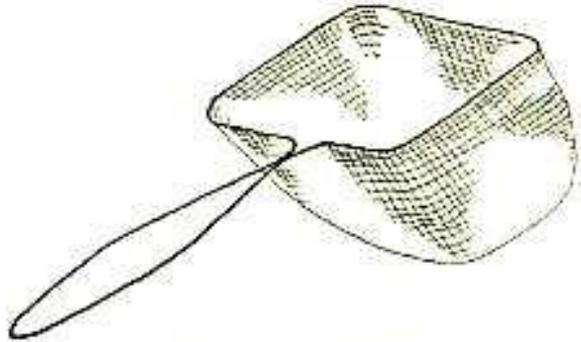
...is the greatest sport in the world. On any level it is an exciting encounter with nature. On the highest level, it is a chance to match wits not against a fish, but against the power of evolution itself to hone a creature's instinct for scrutiny to masterful levels. Coaxing a selective trout into taking your fly, particularly one that you've tied yourself, is the most satisfying challenge in fishing.



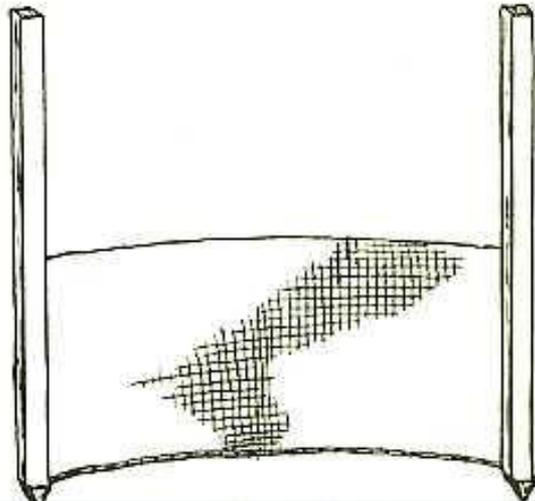
**Trout spend their entire lives living under the water; so, naturally, the bulk of their diet consists of eating things that live in and on top of the waters they inhabit.**



If you want to learn about trout foods,  
learn to collect stream insect samples.



Hand aquarium net—8 inches long



# MAYFLIES



## **Mayflies may be...**

**the most important insects for trout fly-fishers to know about and understand. They are famous, even outside the world of fishing, for their fragile, graceful beauty and short adult life span, which lasts, in most cases, but a single day to mate and die!**

# Mayfly Forms



Brown Drake nymph (*Ephemera simulans*)



Female Brown Drake Dun (*Ephemera simulans*)



Hendrickson nymph (*Ephemerella subvaria*)



Hendrickson (*Ephemerella subvaria*, male spinner)

# Blue Winged Olive Nymph

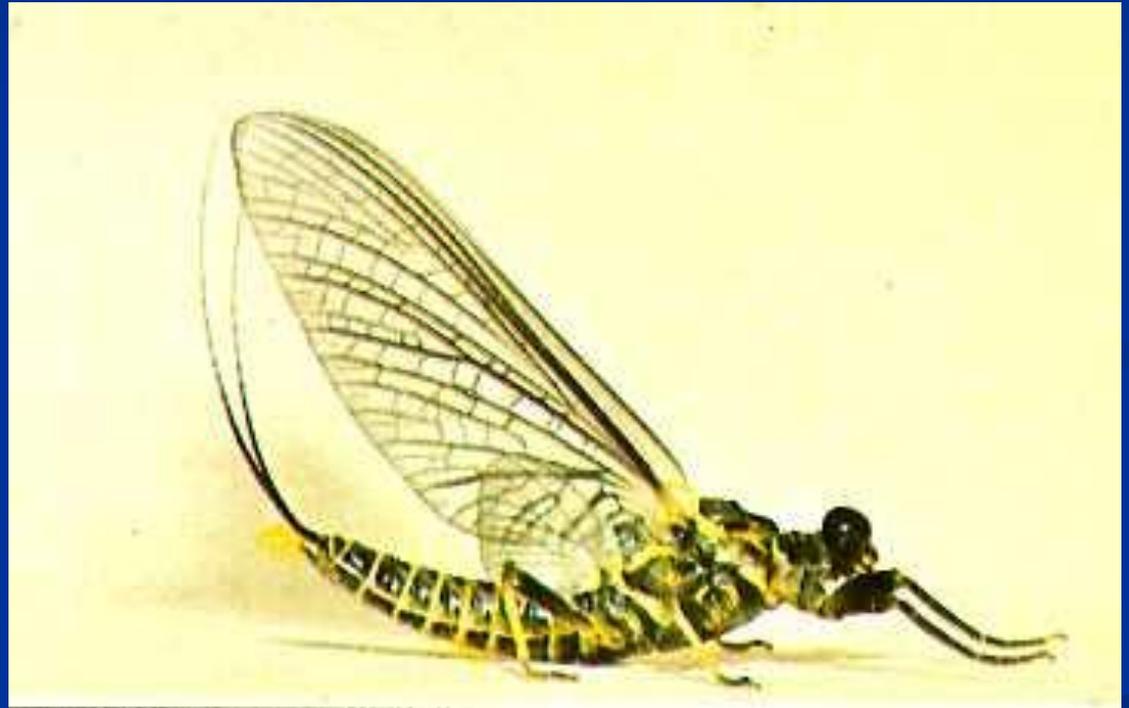


# Blue Winged Olive Dun

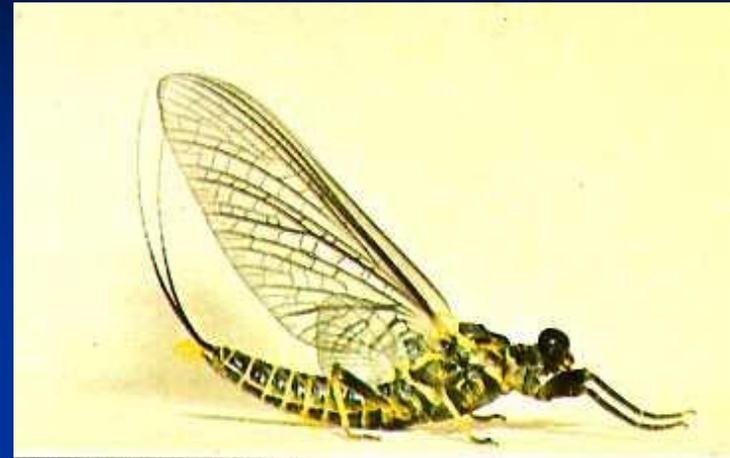


# Typical Adult Mayfly Anatomy

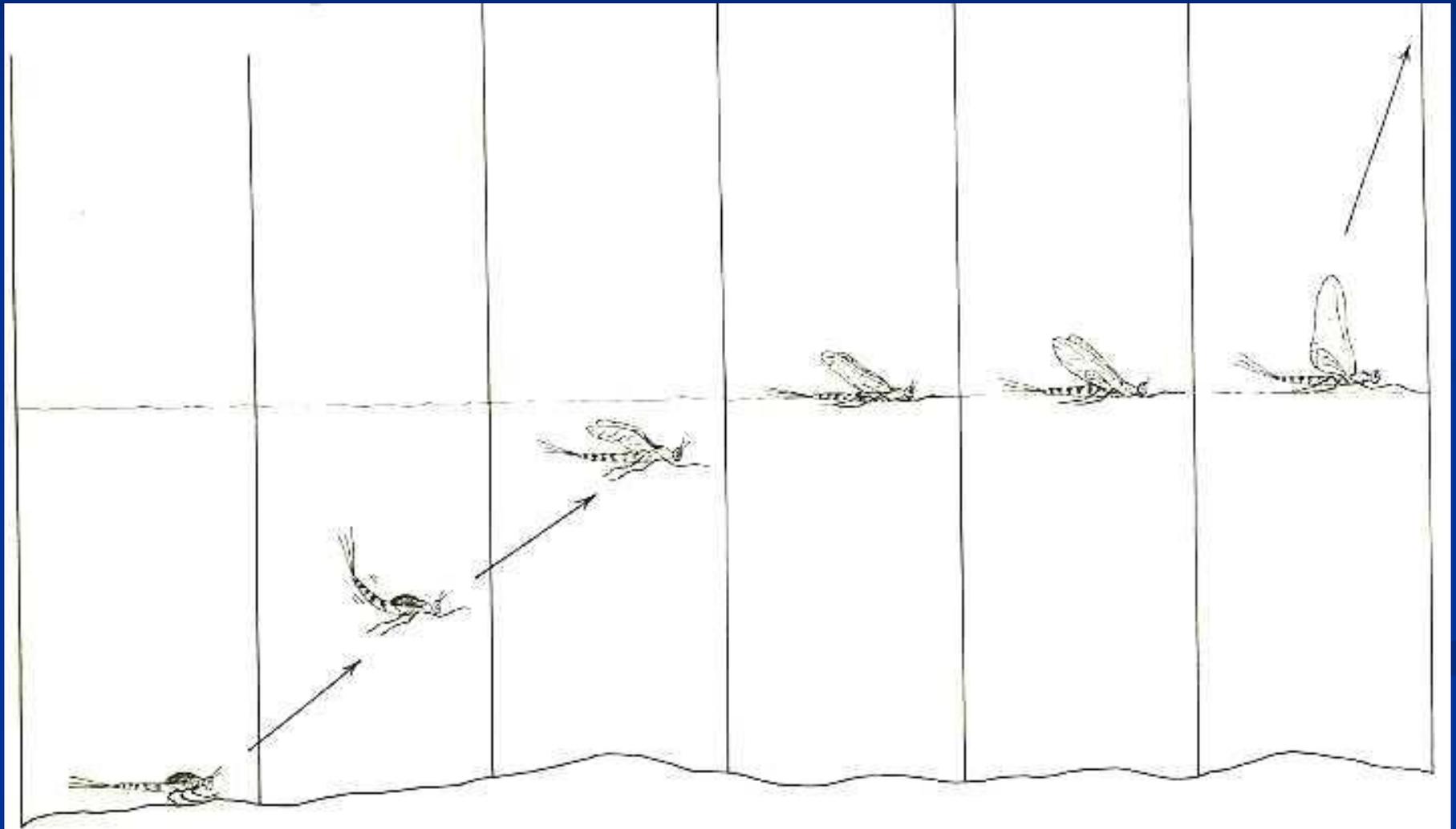
- Head
- Thorax
- Abdomen
- Legs
- Wings
- Tails (2 or 3)



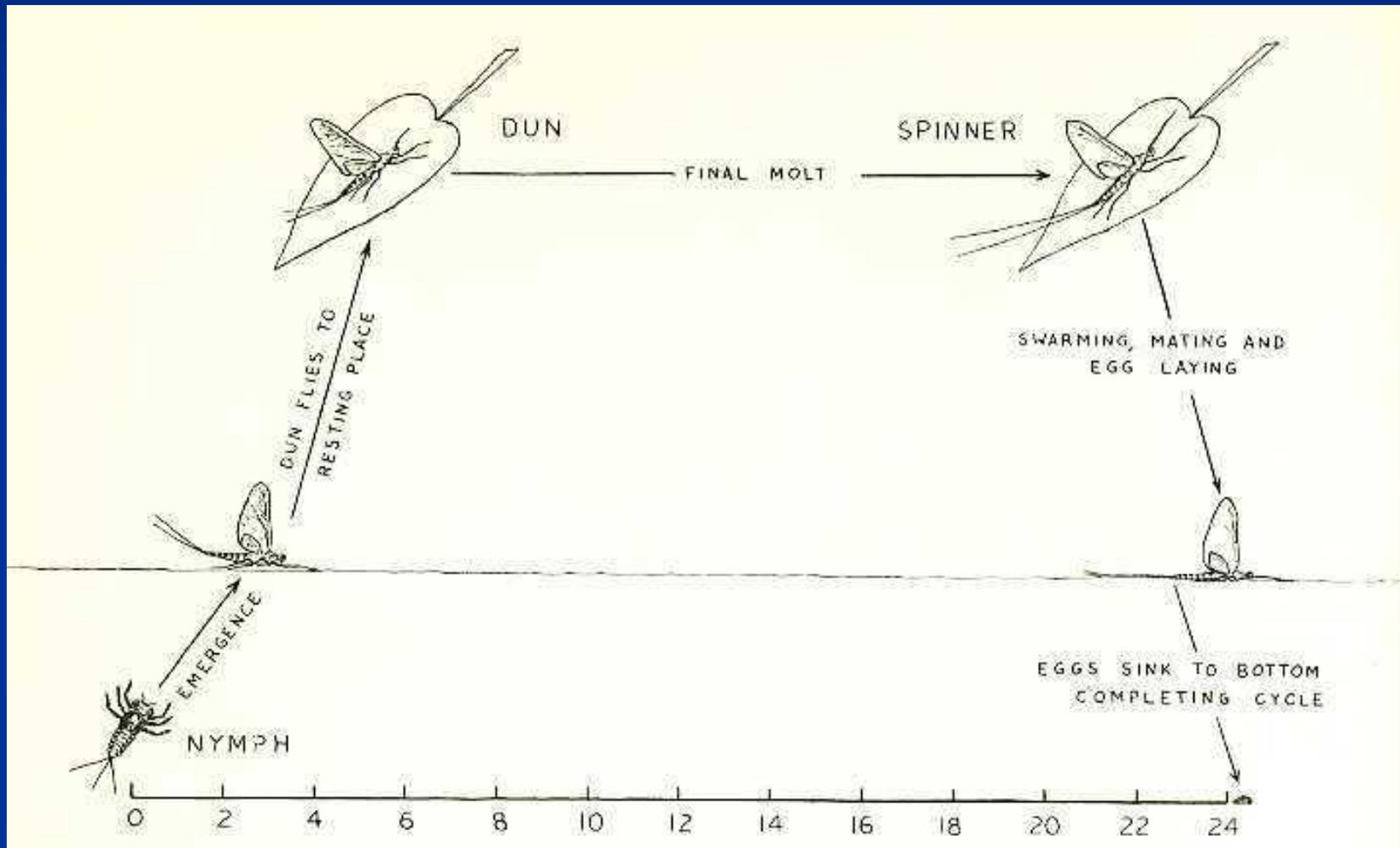
- Once you know the type and form of the insect that is hatching, the next logical step is matching an appropriate fly to imitate the natural.



# Typical Mayfly Emergency Sequence



# Typical Mayfly 24-Hour Adult Life Cycle



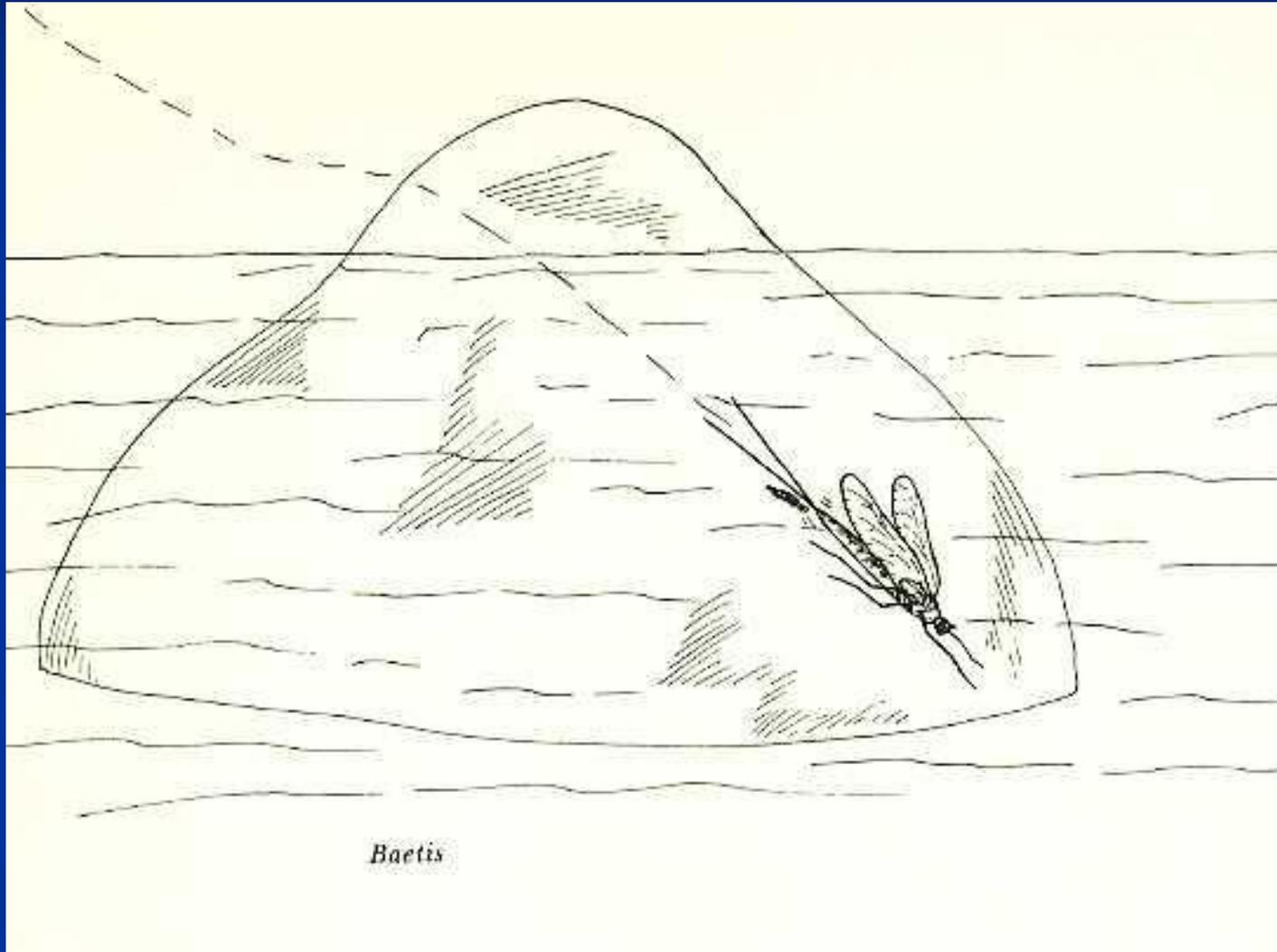
**Riffles are the trout  
stream incubators.**



# MAYFLY MATING SWARM



# OVIPOSITING (Egg-Laying) Below the surface



*Baetis*

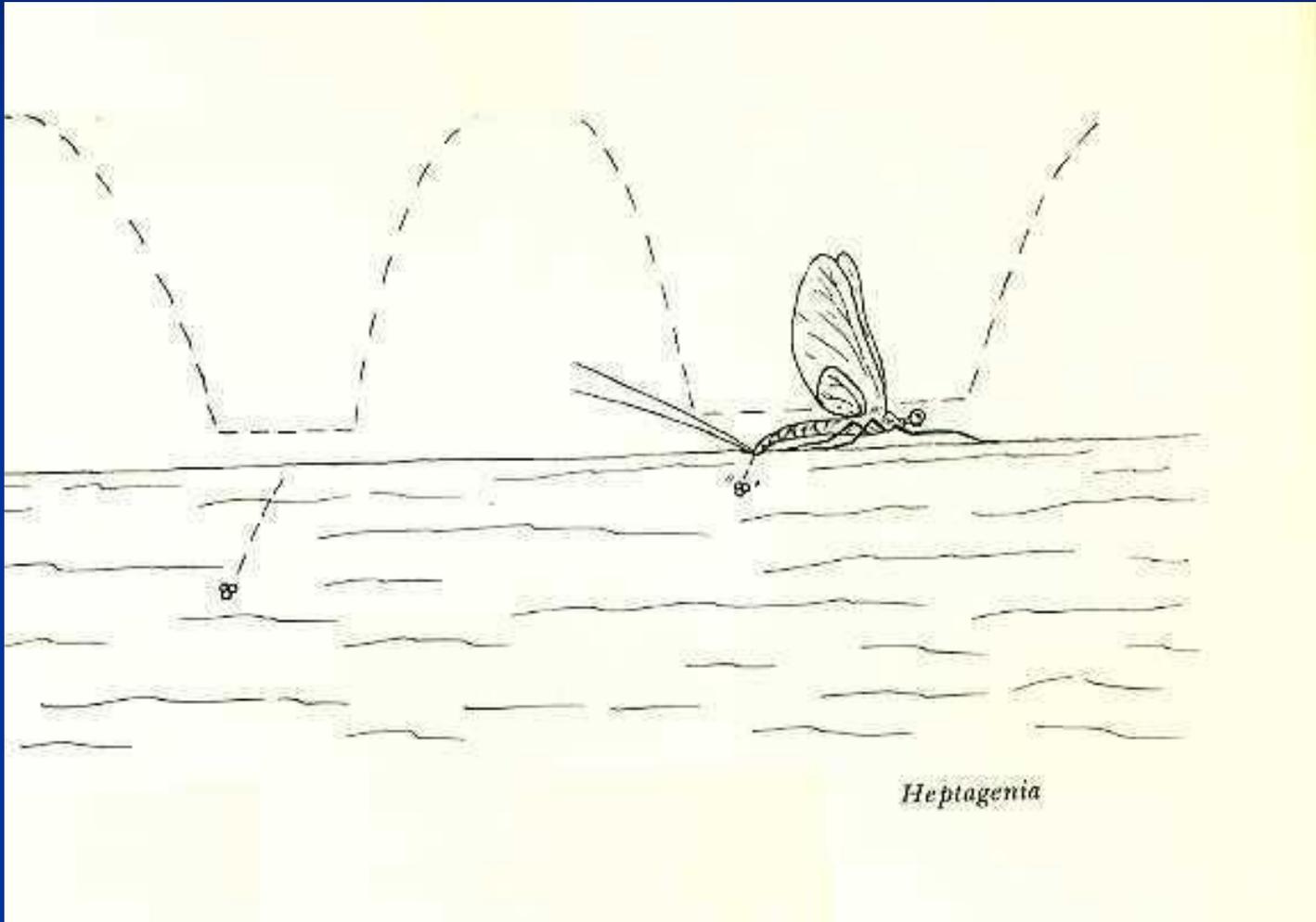
# OVIPOSITING

## Dappling in the surface film



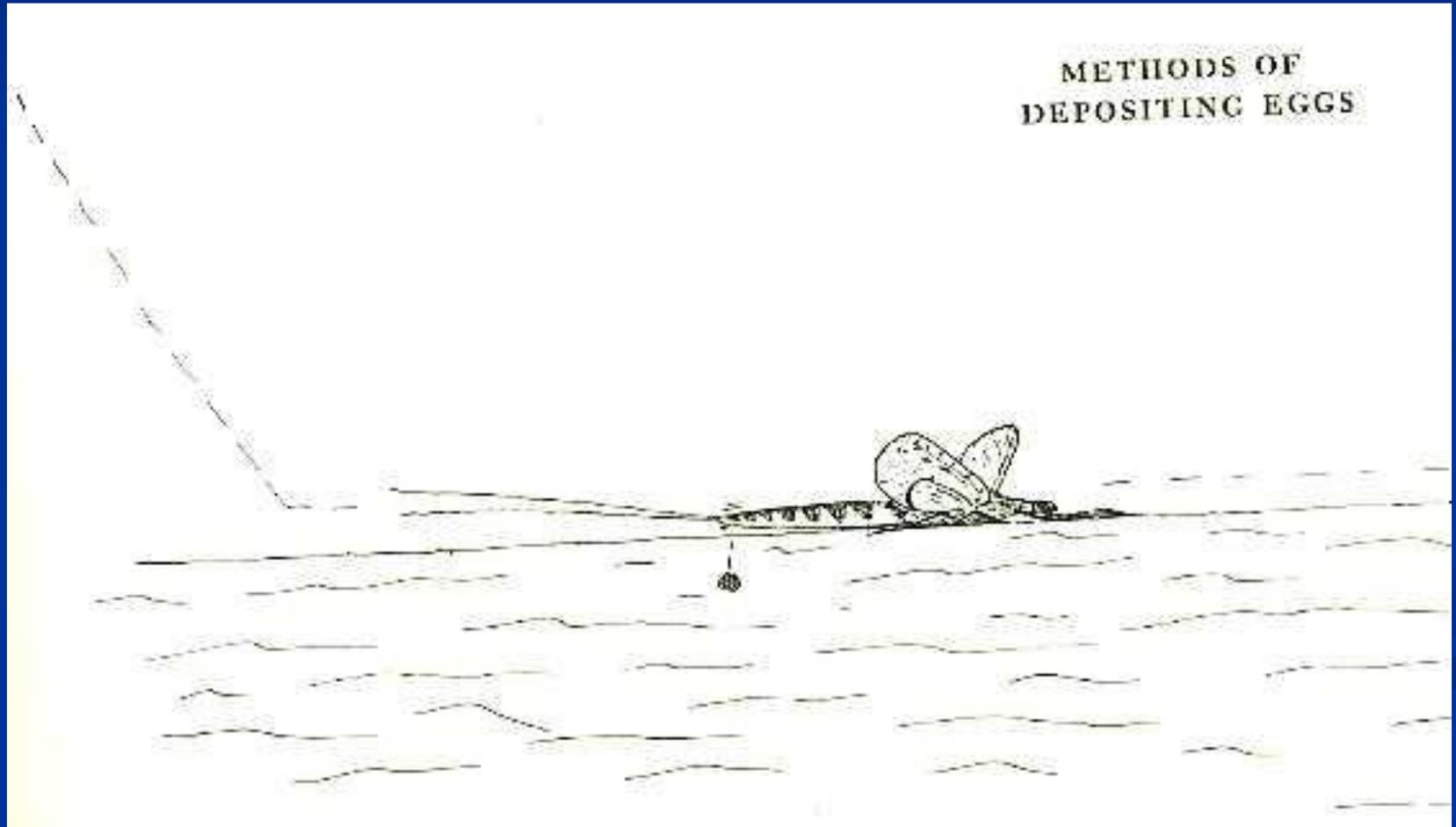
# OVIPOSITING

## Hopping on the surface



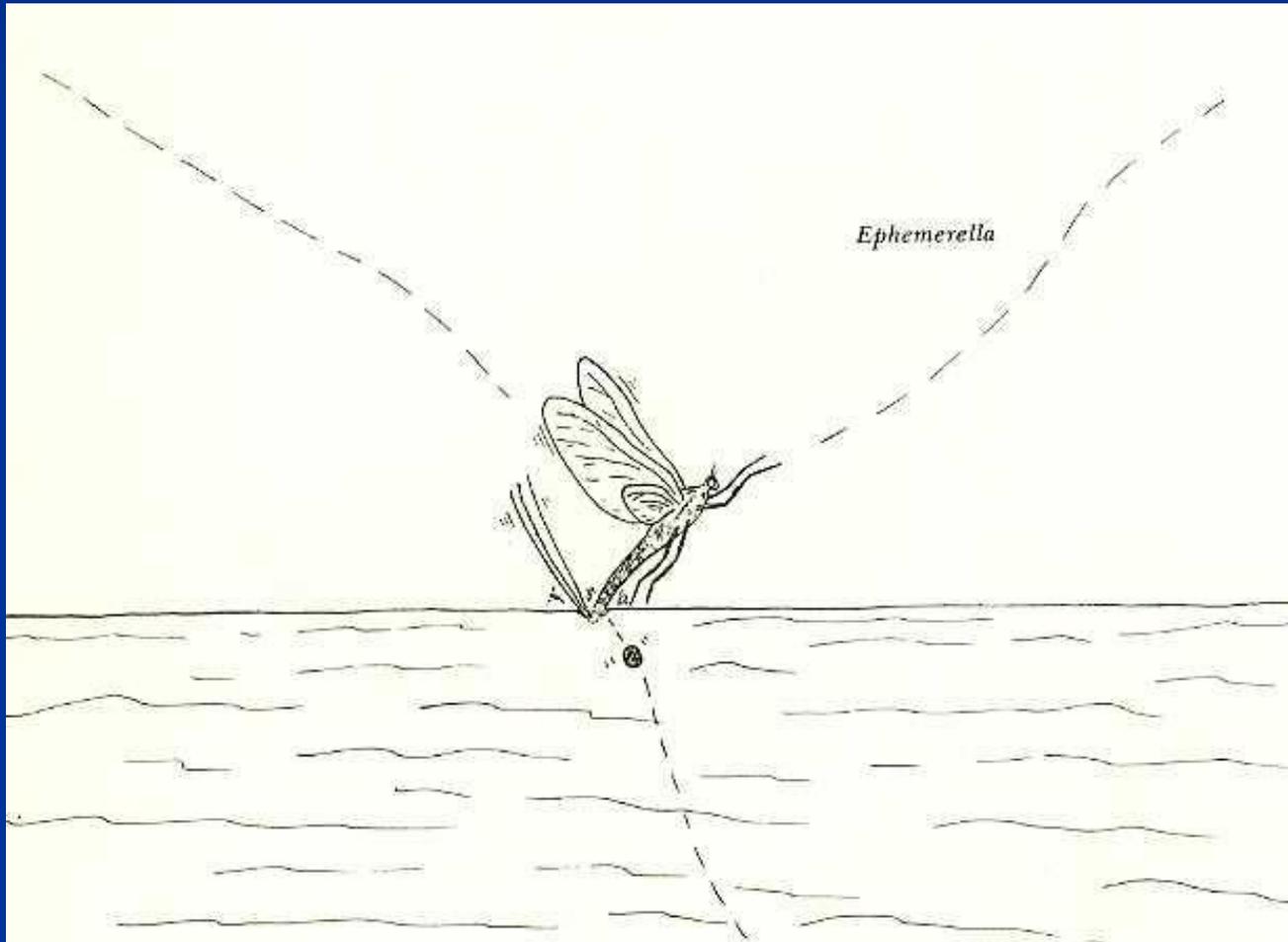
# OVIPOSITING

## Sitting in the surface film



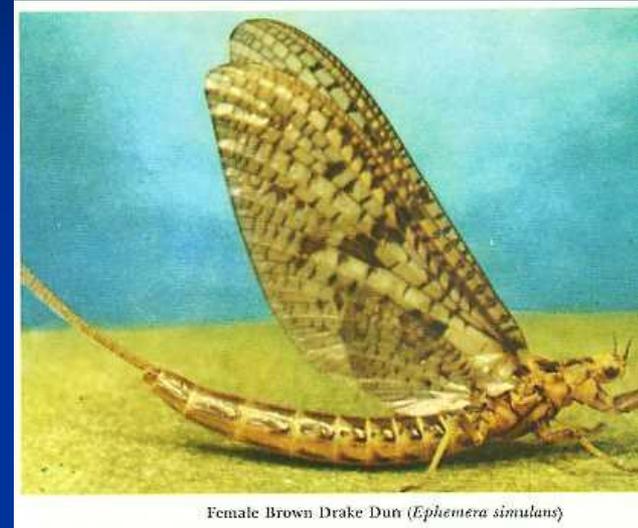
# OVIPOSITING

Entire egg mass dropped  
on the surface



# SUMMARY:

## Popular Fishable Mayfly Forms



# Eastern *Super Hatches*

## EASTERN SUPER HATCHES

| Genus and Species<br>(Common Name)<br>Size                     | PEAK EMERGENCE |     |      |      |      |       |      | STAGE |   |   | PATTERNS REQUIRED |                         |
|--|----------------|-----|------|------|------|-------|------|-------|---|---|-------------------|-------------------------|
|  | April          | May | June | July | Aug. | Sept. | Oct. | N     | D | S | No.               | Name                    |
| Epeorus pleuralis<br>(Gordon Quill)<br>#14 or #16              | 20             | —10 |      |      |      |       |      | X     | X |   | 1                 | Slate/Brown Emerger     |
|  |                |     |      |      |      |       |      |       |   |   | 2                 | Slate/Tan No-Hackle     |
| Ephemerella subvaria<br>(Hendrickson)<br>#12 or #14            | 25             | —20 |      |      |      |       |      | X     | X | X | 1                 | Slate/Brown Emerger     |
|  |                |     |      |      |      |       |      |       |   |   | 2                 | Slate/Tan Paradun       |
|  |                |     |      |      |      |       |      |       |   |   | 11                | Dun/Brown Hen Spinner   |
| Ephemerella dorothea<br>(Sulphur Dun)<br>#16 or #18            |                | 20  | —    | 5    |      |       |      |       | X | X | 9                 | Gray/Yellow No-Hackle   |
|  |                |     |      |      |      |       |      |       |   |   | 11                | Dun/Brown Hen Spinner   |
| Stenonema fuscum<br>(Gray Fox)<br>#10 or #12                   |                | 25  | —15  |      |      |       |      |       | X |   | 2                 | Slate/Tan Paradun       |
| Ephemera guttulata<br>(Green Drake)<br>#8 or #10               |                |     | 1    | —10  |      |       |      |       | X | X | 9                 | Gray/Yellow Paradun     |
|  |                |     |      |      |      |       |      |       |   |   | 13                | Dun/Cream Hen Spinner   |
| Ephemerella attenuata<br>(Slate-wing Olive Dun)<br>#16 or #18  |                |     | 10   | —1   |      |       |      |       | X |   | 8                 | Slate/Olive No-Hackle   |
| Tricorythodes species<br>(Tiny White-wing Black)<br>#24 to #28 |                |     |      | 5    | —    | 10    |      |       |   | X | 14                | White/Black Hen Spinner |
| Baetis species<br>(Blue-wing Olive)<br>#18 to #24              | 25             | —   |      |      |      |       | —15  |       | X |   | 7                 | Gray/Olive No-Hackle    |

**Big fish are most catchable  
during a super hatch!**



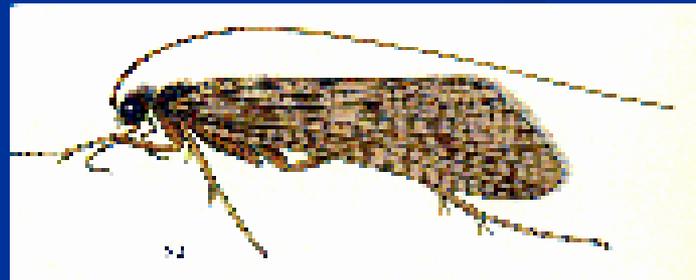
So, refer to your hatch chart...

| Brodhead Creek Hatches |         |     |     |     |     |     |     |     |     |
|------------------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|
| Insect                 | Size(s) | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct |
| Blue Quill             | 18      |     | █   |     |     |     |     |     |     |
| Quill Gordon           | 14      |     | █   |     |     |     |     |     |     |
| Hendrickson            | 14      |     | █   | █   |     |     |     |     |     |
| Tan Caddis             | 16      |     | █   | █   | █   | █   | █   |     |     |
| Gray Fox               | 12,14   |     |     | █   | █   |     |     |     |     |
| March Brown            | 12      |     |     | █   | █   |     |     |     |     |
| BWO                    | 14      |     |     | █   | █   |     |     |     |     |
| Sulphur                | 16      |     |     | █   | █   |     |     |     |     |
| Light Cahill           | 14      |     |     | █   | █   |     |     |     |     |
| Terrestrials           |         |     |     |     | █   | █   | █   | █   |     |
| • Ants                 | 16-20   |     |     |     |     |     |     |     |     |
| • Beetles              | 12-18   |     |     |     |     |     |     |     |     |
| • Caterpillars         | 12 2XL  |     |     |     |     |     |     |     |     |
| • Grass Hopper         | 10 2XL  |     |     |     |     |     |     |     |     |
| Light Cahill           | 18      |     |     |     |     |     | █   |     |     |

**Pick the correct fly, and...**



# CADDIS FLIES



Some trout fly-fishers say that... caddis flies are even more important than mayflies. Since **Gary LaFontaine's** ground-breaking book, ***Caddiesflies***, they have been getting more than their fare share of attention on the end of a tippet! Sadly, though, many anglers simply don't know enough about them and simply think all caddis flies are pretty much the same, which is just not the case!



## Caddis Flies

There is just as much variety in their emergence and egg-laying behaviors as mayflies, and as many patterns and techniques are needed to properly match them in order to induce a trout's strike.

# Caddis larva on a sandy bottom.

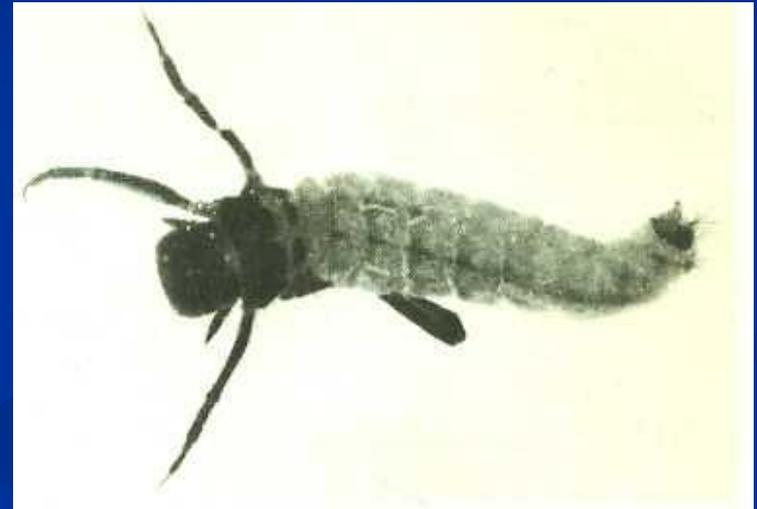


# Cased Caddis on an underwater log.



# Caddis Fly-fishing...

- Can be a deep-nymph fisher's dream
- Because they can drift below the surface along the river bottom for long periods of time before trying to break through the water's surface, the fishing action can be extended and more consistent than when fishing a mayfly hatch



# Caddis Pupae

- The pupae become very active just before emergence.
- They may drift along the river bottom for many hours before emergence.
- They are generally excellent swimmers.
- They use their legs as paddles rather than wriggling their bodies to move.



# Most caddis species...

- Rise to the surface and struggle to get through the surface film
- Take flight quickly once they're through the water
- However, slower species must drift and struggle for longer periods of time, half submerged, before they can wriggle free of their pupal shucks.

# Some caddis pupae...

- Crawl out of the water on rocks, sticks, etc.
- Thus, the adults emerge high and dry



# Some caddis pupae...



- Rise quickly to the surface
- Swim across to the shore
- Crawl out and emerge

# After emerging...



- **Adult caddis flies live for a longer period of time than mayflies, anywhere from several days to a few weeks, depending on the species**
- **Are able to drink and remain hydrated**
- **Mating can be seen for longer period of time long after emergence is completed**

# Most caddis fly larva live in cases they build out of...

- Sand
- Rocks
- Twigs
- Leaf pieces
- Other underwater debris



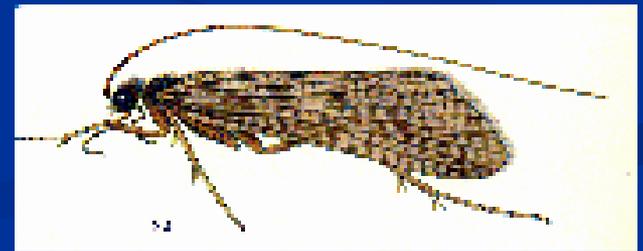
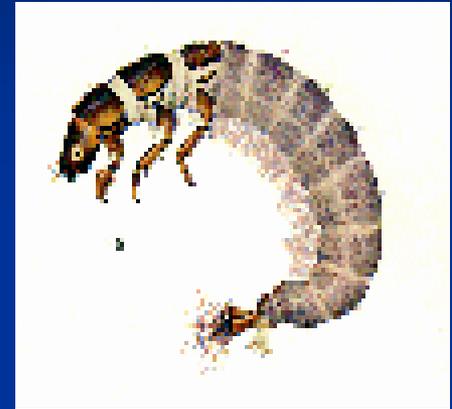
# Some caddis can spin silk!

- They spin nets instead of building cases.
- In this case, these are not their residences, but rather hunting traps.
- They are like spider webs and catch plankton and smaller aquatic insects the larvae eat.
- A single caddis larva will usually build several nets and then freely roam around the rocks and logs tending his nets and devouring the catch!



# Caddis Fly Biology

- When caddis larva are full-grown, they seek hiding places to pupate, either in their cases or in special cocoons.
- They are considered pupae throughout the transformation from grub-like larva into intricate winged adults.



# Adult Caddis Anatomy

- Long Antennae
- Head
- Thorax
- Abdomen
- Legs
- Tent-Shaped Wings
- **NO TAILS!**



# Caddis-caught brown trout!



# STONEFLIES

# STONEFLIES

- In our area, stoneflies are the largest, but usually least important, of the three main types of trout stream insects.
- Typically, they are far more important out West where adult *Pteronarcys* stone fly hatches occur, such as the fabled “Salmon Fly Hatch”.
- Are usually fished here in the northeast in the nymphal form when no other visible hatches are observed.
- *Some species live as nymphs for up to three years!*

# Stonefly Nymph – Top View



# Stonefly Nymph – Bottom View



# Stoneflies on a log.



# Empty Stonefly nymphal shucks.



# Adult stoneflies are essentially unimportant here in northeast Pennsylvania because:

- Their emergence style keeps them safe from trout at a stage when mayflies and caddis flies are the most vulnerable.
- They emerge by crawling out of the water onto:
  - Rocks
  - Sticks and
  - Other shoreline objects.



# Adult Stonefly Emerging!



# AFTER EMERGING...

- **Adult stoneflies may live for up to a month.**
- **They are like caddis flies and unlike mayflies in that many stone fly adults can eat and drink as adults.**



# Let's Review the Most Typical Trout Stream Foods



**Other Life  
Forms  
Trout Eat**

# BEEETLES

- Largest order of insects.
- Many beetle species are taken by trout.
- **Anglers usually fish the adult under a streamside branch to imitate a beetle that has fallen in.**
- Some species live underwater their entire lives.
- Others live underwater only as larva.
- Beetle larvae can assume many different shapes.



**Brown caught on a beetle imitation.**



# MIDGES



- Extremely important food source in many areas.
- Quite abundant in fertile spring creeks.
- Abundant in slow moving streams making them easy prey for trout.



**Took a size #26 midge!**



# ANTS!



**During warm weather, an ant pattern cast along the bank, under an overhanging branch, can be a “go to” fly when there's no surface activity.**



# Gulped a flying ant!



# DRAGONFLIES...

- Adults are rarely vulnerable to trout because of their superb flying ability.
- The large, slower nymphs are easy prey for trout.



# DOBSON FLIES

- Predatory larvae are known as hellgrammites
- Largest trout stream insect!
- Often imitated by a deeply-fished Woolly Buzzer.



# CRAYFISH

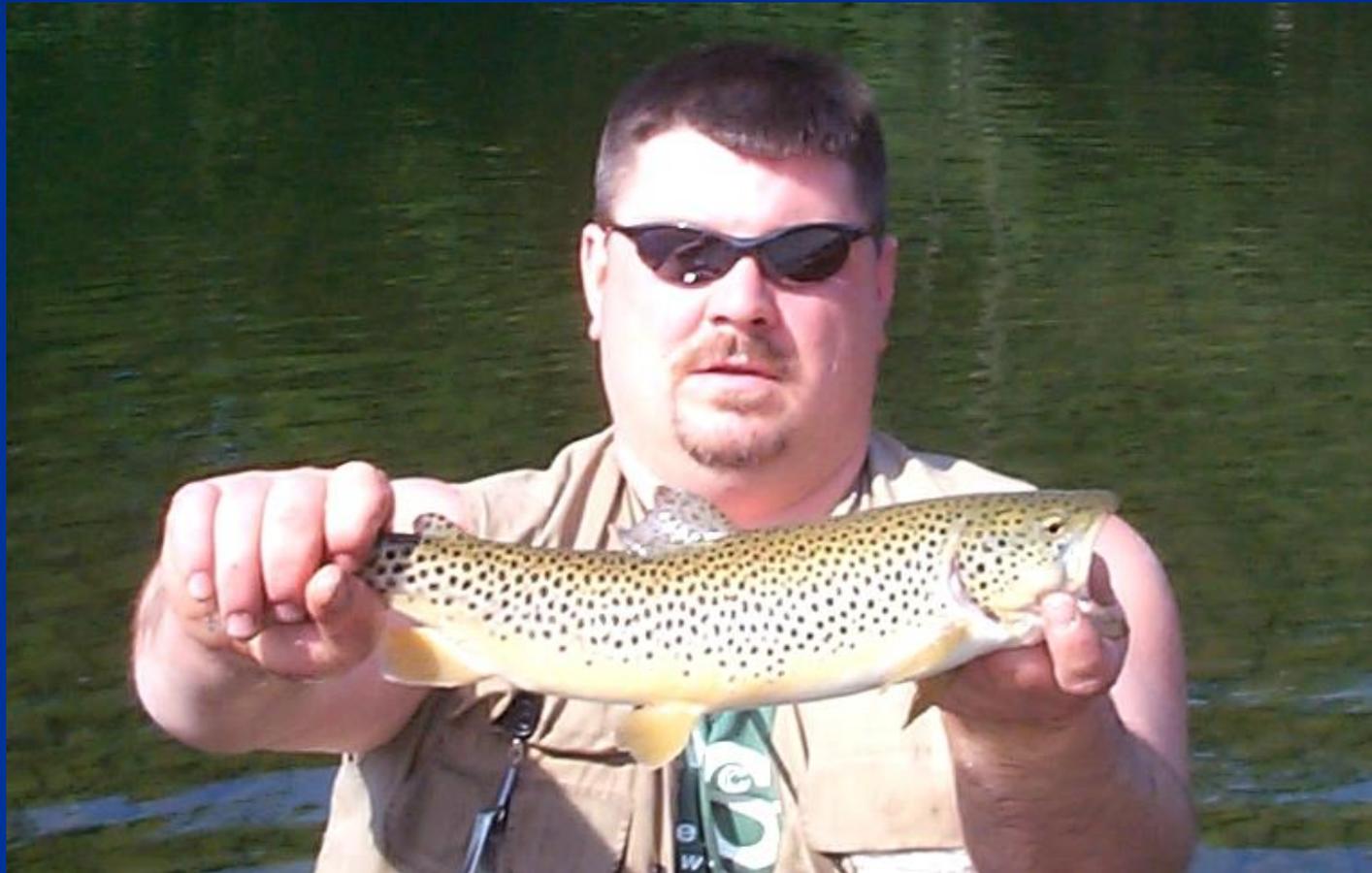
- Readily available in most streams.
- Often overlooked by fly-fishers.
- Big, nutritious food source.
- Trout love them!



**A large Woolly Buzzer makes a good imitation for either a hellgrammite or a crayfish.**



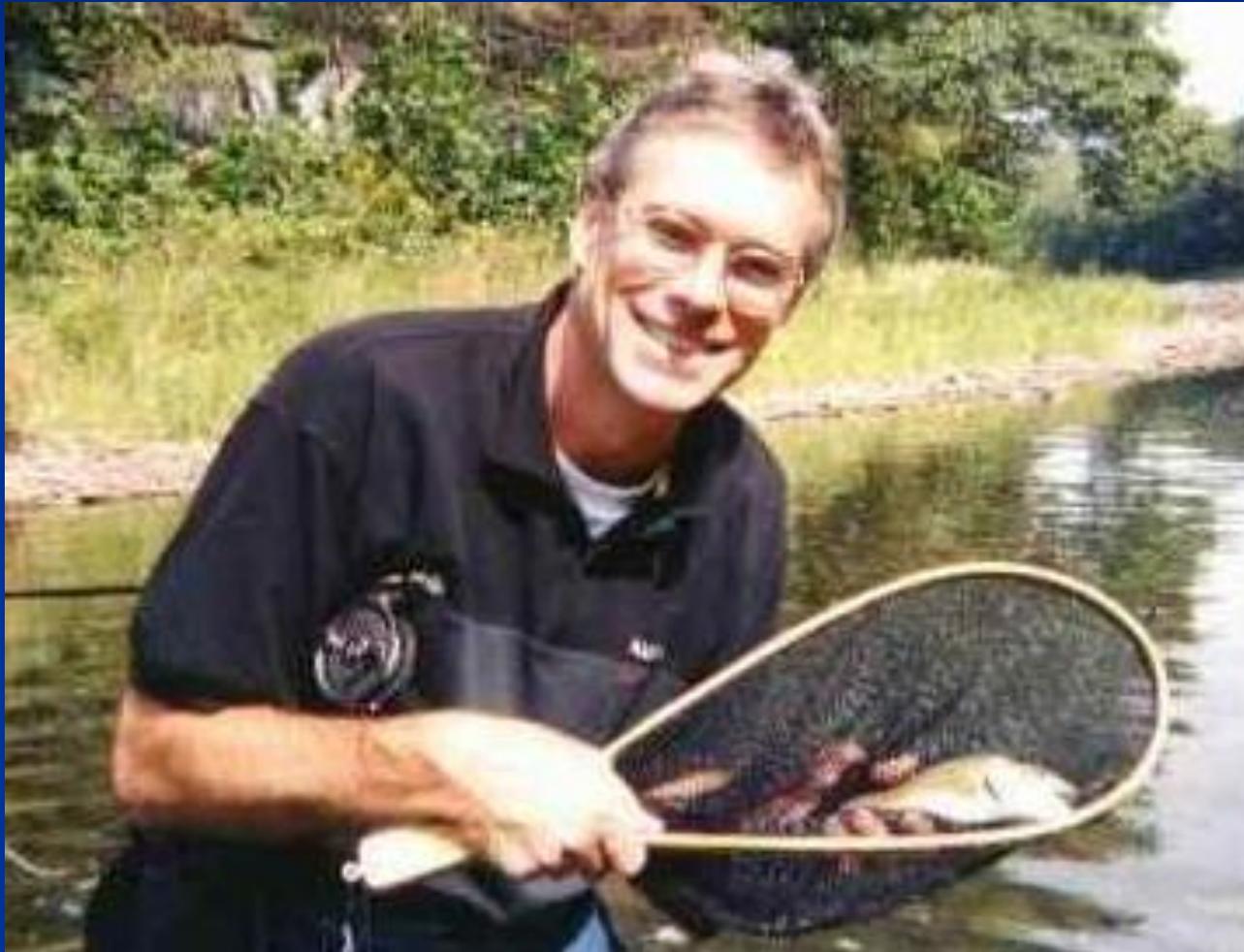
**This brown trout took a  
large Woolly Bugger.**



# Leeches



# Caught on a black leech!



# Water Boatman



# Scuds



# Crane Flies



# Damselflies



# Leaf Hoppers



# Crickets



# Grasshoppers



# Spiders



# Moths



# Butterflies



# Bees



# Wasps



# Field Mice and Voles



# Small Ducklings



# Frogs



# Trout Eggs & Other Fish Eggs



# Water Fleas (Daphnia)



# Caterpillars



# Snails



# Newts & Salamanders



# Small Water Snakes



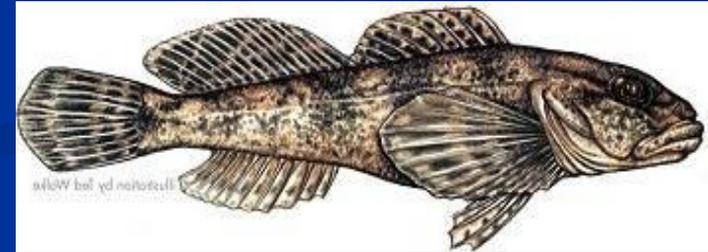
...and of course, common...  
**EARTHWORMS!**



**And, of course, big trout eat other fish!**



**Chubs**



**Sculpins**



**Black Nose Dace**

**Putting it all together...**

**or**

**A Simple Entomological  
Approach to  
Fly-fishing Success**

# SUMMARY:

- Develop a basic knowledge of trout stream insects.
- Learn to identify the insect form that's currently emerging.
- Select the appropriate fly pattern that “matches the hatch” at that moment in time.
- Make a “quiet cast” and a drag-free float into the trout's visual “window”.
- Stay alert and get ready to set the hook!

**So, if you want to catch trout  
like this...**



**Let's review one more time!**

**1. Identify the hatch currently coming off and upon which the trout are actively feeding.**



**2. Select a matching fly pattern for the same insect form upon which the trout are currently feeding.**



**3. Locate an active feeding fish, and move into an “invisible position” so that trout can’t see you approaching and casting to it!**



4. Make a good, “quiet cast” to the trout and let your fly float in a drag-free manner, moving at the same velocity as the natural food in the water.



## 5. SET THE HOOK!



## 6. Smile!



Now that you have a better sense of the insects that trout eat and how to imitate their various forms through appropriate fly selection, it's time for you to tie up some flies and get to your local trout stream!

Good luck and ***TIGHT LINES!***

**THE END!**



